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of  
WORLD WAR TWO

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*A quartet of Fairey Swordfish Mk. I torpedo bombers returning from a patrol.*

[Imperial War Museum]

Front Cover: A Hawker Hurricane IIC.

# INTRODUCTION

THIS ABC COMPLETES the record of aircraft of the western European powers which fought in the Second World War, those of Germany and Italy having been dealt with in an earlier volume. Two further books are to follow, the next covering the American aircraft of the period and the fourth dealing with those of Japan and Russia.

The "major" and "minor" British types, of which there are 27 and 40 respectively, reflect an interesting cross-section of designs, and the list on pages 63-64 contains very brief notes on less significant operational types and some of the more fascinating experiments. The comparative lack of transport aircraft is explained by the fact that these were provided largely by the United States, but the additional space thereby conferred has permitted a more extensive description of some of the leading designs.

Whatever the limitations of productive capacity, there was no shortage of British ingenuity during the war, as is clearly illustrated by the development of radar and jet propulsion and the inventions of such men as Barnes Wallis. Almost as remarkable were the enormous strides made in the conventional development of airframes and aero-engines. Aircraft performance increased out of all recognition, with the Lancaster finally carrying bomb loads of up to ten tons and a number of piston-engined aircraft achieving speeds of 450 m.p.h. or more. To a very great extent this improvement was attributable to great advances in engine output and design, Rolls-Royce and Bristol being particularly outstanding in this sphere.

The great majority of the photographs used in this book come from the files of the Imperial War Museum, to whom I am once again indebted for their customary courtesy and attention. The remaining prints appear by permission of the Air Ministry.

K.G.M.

January 1961.



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# PER ARDUA AD VICTORIAM

AFTER THE ARMISTICE of 1918 the R.A.F. was the world's most powerful air force. It had 3,300 first-line aircraft (22,000 altogether) and over 290,000 men. Such a size was, however, uneconomical for a peacetime force, and in the following year drastic reductions in machines and manpower were made. Thereafter the R.A.F. began to grow again, slowly, though it was not until the middle 1930s that any large-scale expansion was attempted. Up to 1936 the standard fighter was still the two-gun biplane, and the bomber force was made up of obsolescent biplanes and ponderous monoplanes with poor speeds, short ranges and modest bomb loads. The advent to power of Adolf Hitler in 1933 and the subsequent official confirmation of the existence of the Luftwaffe stirred those in authority to recognise the potential danger from this quarter, and in 1934 plans began to be mooted for a realistic expansion of our land and naval air forces: the arms race was on. The first-line aircraft strength of the R.A.F. in 1933—two years before the Luftwaffe was “formed”—was 850 aircraft; a series of re-equipment plans aimed ultimately to increase this figure to 3,550, with nearly another 6,000 aircraft in reserve. The “shadow factory” movement was begun in 1936, with the resources of the British motor industry co-opted to supplement the production of the aircraft companies themselves. Not for another two years, however, was this production allowed to reach the limit of its capability; during this time it was still restricted by budgetary considerations. However, the types of aircraft which the enlarged industry was now engaged in building were at least a marked improvement upon previous equipment. The obsolescent bombers of the early 'thirties were already beginning to be replaced by a family of twin-engined monoplane



*The Hawker Hurricane brought 300 m.p.h. speeds and an eight-gun armament to R.A.F. Fighter Command, and was numerically the most important fighter at the beginning of the war.*  
[Imperial War Museum]





*The Supermarine Spitfire remained in production and service from beginning to end of the Second World War, and was subject to extensive development. Above is a Griffon-engined Mk. XII with clipped wings for low-level fighting.* [Imperial War Museum]

types; in place of the two-gun biplane came the first eight-gun monoplane fighters; and the foundations were laid for the first really heavy bombers, the four-engined Stirlings, Halifaxes and Lancasters of the middle war years. The Fleet Air Arm, as had been its lot for almost the whole of its existence, lagged somewhat behind its land-based fellow service, and by the time the Second World War broke out could still put up no more modern a fighter than the Sea Gladiator. Specialised reconnaissance and torpedo bomber types, until as late in the war as 1943, were destined to be represented by such machines as the biplane Swordfish. However, the F.A.A. could draw some consolation from the seven new aircraft carriers which were ordered for it in 1938.

When Great Britain entered World War 2 on 3rd September, 1939, the R.A.F. could boast a fighter strength—although still low by comparison with the Luftwaffe—of over 1,000 machines, of which more than half were the new eight-gun types, the Hurricane and the Spitfire. Bomber Command was equipped with approximately equal numbers of Blenheims, Whitleys, Wellingtons and Hampdens, together with a few squadrons of single-engined Battles. Coastal Command was relatively poorly off, for apart from its Ansons, some American Hudsons and a small number of Sunderland flying boats, the reconnaissance squadrons were still equipped with ageing Stranraer and London flying boats and the torpedo bombing force was made up of antiquated Vickers Vildebeests. At the outset—in fact on 2nd September, the day before Britain declared war on Germany—the Advanced Air Striking Force was established in France with a force of ten Fairey Battle squadrons, two of Blenheims and two of Gladiators. The air component of the British Expeditionary Force sent to the Continent comprised a further four Blenheim squadrons



together with four of Hurricanes and five of Lysanders. Coastal Command, meanwhile, was charged with patrolling the North Sea, with Blenheims, and with the de-gaussing of mines by specially fitted Wellingtons.

On the 17th December, 1939, the famous Empire Air Training Scheme was drawn up, to cope with the enormous task of training, quickly and thoroughly, the large number of aircrew who would soon be required to fly the rapidly-increasing numbers of aircraft now being built. Canada was by far the largest participator in the Scheme, but was ably joined by Australia, New Zealand and Southern Rhodesia. Eventually, though considerably later, the training of Allied pilots was to take place in the United States as well.

During these first few months of the war—the “Phoney War” as it has now become known—little positive happened on either side, apart from the campaign on the ground in Europe. The main German offensive, launched in the Spring of 1940, pushed us inexorably towards Dunkirk, and in the middle of June Italy joined the war on Germany's side. In those two months alone the R.A.F. lost nearly 1,000 aircraft, and those remaining at home to face the Luftwaffe were outnumbered by two to one.

On 18th June, Winston Churchill reported to the House of Commons: “What General Weygand called the Battle of France is over. I expect that the Battle of Britain is about to begin.” Two months later he was proved right. Despite the fury of the fight and the heavy losses incurred, however, those two months were a valuable breathing space, in which we were able to get our second wind after Dunkirk and work out a redeployment of our forces for home defence. It is now a matter of history that during the ensuing seven weeks the skies above Southern England were thick with the vapour trails and gunsmoke of battling aeroplanes, from which the Luftwaffe emerged with 1,733 machines lost and the R.A.F. with 915 destroyed. With its back to the wall, outnumbered in both men and machines, the Royal Air Force had nevertheless proved to the world that the mighty German war machine was capable of being beaten. One of the men she had to thank for this, apart from the pilots themselves, was Air Chief Marshal Sir Hugh Dowding. Had it not been for his stubborn resistance to all attempts to deplete our home fighter squadrons to prolong the conflict on the Continent, British resources to meet the aerial onslaught later that summer would have been even more slender. As early as 16th May, 1940, Dowding had told the Air Ministry that “if adequate fighter force is kept in this country, if the fleet remains in being, and if Home Forces are suitably organised to resist invasion, we should be able to carry on the war single-handed for some time, if not indefinitely. But, if the Home Defence Force is drained away in desperate attempts to remedy the situation in France, defeat in France will involve the final, complete and irremediable defeat of this country.”

After the Battle of Britain, the German blitz on England by day and night increased, and many other theatres of war also began to make demands upon the British air forces: the fight spread to the Middle East, and the enemy invaded Greece. But the year was not completed without its compensations for the Allied cause: the Mediterranean island fortress of Malta began slowly to recover after its summer siege, and in November





*One of the war's outstanding achievements was the development of airborne radar. Above, an early form of A.S.V. (Air to Surface Vessel) radar with external antennae is seen on a Wellington G.R. XIII.* [Imperial War Museum]

the Fleet Air Arm brought off a notable coup when it attacked and severely crippled the Italian Fleet at Taranto. In 1941, the tide was beginning to turn. No longer were we completely on the defensive, and the Battle of Britain began to give way to the Battle of Germany. Bomber Command started to hit back at night—daylight raids with our existing equipment having incurred severe losses during the early months of the war—against targets in France, Italy and Germany. Slowly the intensity of these attacks rose, and by the end of the year “Bomber” Harris’s team were giving the enemy something to think about. This was not the only piece of food for Axis thought, for on the 7th December, 1941, Japan launched her murderous attack on the U.S. Fleet in Pearl Harbour and America, already sympathetic to the Allied cause, was precipitated into the war as a major participant. As the final result proved, the entry of the United States on the Allied side—despite the initial decimation of her vast naval strength—far outweighed the addition of Japan to the Axis powers, and Hitler himself in his more rational moments must have considered his new ally something of a mixed blessing.

As 1942 progressed, the United States Army Air Force, already striking back in the Pacific, also began to reinforce Allied air strength in the European theatre. Its Bostons and Venturas added to the Royal Air Force medium bomber strength against Germany, which itself was beginning to receive reinforcement in the shape of the de Havilland Mosquito. Although not to become regular practice for another year or so, the first of the famous thousand-bomber raids was launched, against Cologne, on the night of 30th/31st May, 1942. From September 1942 the pattern was established of daylight attacks by the U.S. air forces, followed up by night raids from the R.A.F., which was now beginning to receive the first of its four-engined heavy bombers. One of the most useful, although accidental, results of the independent development of aircraft design in Great Britain and the United States during the preceding years was that both countries had developed specialised designs for the particular strategic and tactical purposes which each country foresaw. Thus each possessed types which the other did not, and the subsequent interchange resulted in a more balanced array of individual types than



could have been possible with any single air force. Another great advantage conferred by America's entry into the war was the increase in strength of transport aircraft. Up to the beginning of 1942 the enemy possessed nearly all the transport aircraft available for military purposes. This position was now changed; an agreement was reached whereby America would supply all the transports needed by the Allies, leaving Britain's smaller aircraft industry to concentrate on the production of fighters, bombers and trainers. At this time about one third of the total U.S. production of aircraft was given over to transport types.

By 1943 the tide of war had definitely turned. The African campaign drew to its close, being followed by the invasion of Sicily and the Italian mainland, and the audacity of Allied air attacks against German targets was typified by the brilliant attack in May by 617 Bomber Squadron against the Ruhr dams. By this time the Fleet Air Arm was also giving a splendid account of itself, having acquired considerable new carrier strength and adequate quantities of long range patrol aircraft. It was fighting its own particular battle, the Battle of the Atlantic, in the form of convoy protection, anti-U-boat missions and harassing of enemy shipping in general. In March 1943, foreshadowing the forthcoming invasion of the European continent, R.A.F. Transport Command was formed as a replacement for the former Ferry Command; another hint of the coming Second Front was the formation of the Second Tactical Air Force in November. A new weapon was also introduced into the R.A.F. and F.A.A. armoury—the rocket projectile. Towards the end of 1943, and increasing through 1944, the war in both Europe and the Far East began to be carried back to the enemy.

D-day, as every schoolboy now knows, was 6th June, 1944. Fifteen Transport Command squadrons of Dakotas, Halifaxes, Stirlings and Albemarles, and British and American gliders, took part in the invasion of Normandy, covered by no less than 171 squadrons of Allied fighters and



*An aeroplane which developed almost out of all recognition—compare with the photograph on page 29—was the Handley Page Halifax. On this B. Mk. VI, part of the ventral H2S radar scanner can be seen below the roundel.*

[Imperial War Museum]





*One of a large number of variants of the versatile de Havilland Mosquito was the F.B. Mk. XVIII. It is shown here in the "invasion stripes" which decorated all Allied aircraft engaged in the Normandy landings.*

[Imperial War Museum]

aided by diversions created elsewhere by Bomber Command and other squadrons. By now Bomber Command were carrying out day and night raids against Germany with complete impunity, and with the advance across Europe the ground attack aircraft, first used in any quantity in the Western Desert, now came really into its own. In the forefront of these attacks were machines like the Hawker Typhoon, which became famous for its train-busting and similar exploits both with cannon and with its under-wing barrage of rockets. Germany began a series of last-ditch efforts to stave off ultimate defeat, the first of which was the beginning of the V.1 flying bomb campaign against the United Kingdom. Large numbers of these got through the defences, but they were finally beaten by repeated bombing attacks on their launching sites and, in the air, by Fighter Command Tempests. The latter were joined in this task by



Britain's first jet-propelled fighter, the Gloster Meteor, later to be transferred to Europe to counteract the German jet aircraft being pressed into service. Bigger and bigger bombs were being dropped on Germany, culminating in Barnes Wallis's fantastic 22,000 lb. "Grand Slam" which could be carried only by specially modified Lancasters. The end was in sight at last, and the war in Europe finally came to its inevitable conclusion on 8th May, 1945.

Meanwhile, from the end of 1944, South East Asia Command had undergone a steady and impressive expansion. It now held the offensive and, despite the frantic (though relatively successful) suicide attacks of the Japanese air forces, was placing its attacks nearer and nearer to the Japanese mainland. On conclusion of the European war, Britain re-mustered its aerial strength and formed a "Tiger Force" including some 20 bomber squadrons, to be sent to the Far East to hasten the end of the war there; but in August 1945, two small but potent pieces of hardware dropped from American B-29s on Hiroshima and Nagasaki rendered further preparation unnecessary. The war was over.



*The new aircraft types coming along when the war ended were many and varied. Several of them had flown or were in production before VJ day but were not in time to see operational service; one such type was the Blackburn Firebrand strike aircraft, of which the T.F. Mk. IV is illustrated above.*

[Imperial War Museum





*Oxford Mk. II.*

[Imperial War Museum

## Airspeed Oxford

**Purpose:** Advanced trainer and ambulance.

**Makers:** Airspeed (1934) Ltd.

**Specification:** T.23/36.

**In operational use:** 1939/45.

Known to hundreds of R.A.F. aircrew as the "Ox-box", the Oxford first appeared in 1937 as a military development of the 1934 Envoy feeder-liner, and was the first twin-engined monoplane trainer in the Royal Air Force. The first Oxfords joined the Central Flying School in November 1937, and by the time of the outbreak of World War 2 nearly 400 were in service. Production was subsequently stepped up, Airspeed building nearly four and a half thousand Oxfords, and with sub-contracts placed with de Havilland, Percival and Standard Motors the total number of Oxfords completed came to 8,751. Although used most widely in its intended role as aircrew trainer, the Oxford gave valuable service on communications and anti-aircraft co-operation duties, and was also used in some numbers as an ambulance, particularly in the Middle East. As a trainer, it served in Canada, Australia, New Zealand and Southern Rhodesia as well as in the United Kingdom. Outwardly there was little difference in appearance among the various mark numbers, the principle variations being in power-plant and internal equipment. The Oxford I was a bombing and gunnery trainer, and featured a dorsal Armstrong-Whitworth turret—the only Oxford to do so. The Mk. II was similarly powered, and was equipped as a navigation and radio trainer. This was likewise the function of the Mk. III, powered by two

### BRIEF TECHNICAL DETAILS

(Mk. I):

**Engines:** Two 355 h.p. Armstrong-Siddeley Cheetah IX or X radials.

**Span:** 53 ft. 4 in.

**Length:** 34 ft. 6 in.

**Height:** 11 ft. 1 in.

**Weight Empty:** 5,380 lb.

**Loaded:** 7,600 lb.

**No. in crew:** Three.

**Max. Speed:** 182 m.p.h. at 8,300 ft.

**Service Ceiling:** 19,200 ft.

**Range:** 550 miles.

425 h.p. Cheetah XV, which was also the usual ambulance version. The designation Mk. IV applied to a single Oxford used as test-bed for de Havilland Gipsy Queen motors, while the Mk. V, a standard trainer model, was powered by 450 h.p. Pratt & Whitney Wasp Juniors and was chiefly used in Rhodesia and Canada. During the war period a number of Oxfords were also in service with the Fleet Air Arm as naval crew trainers.





*Whitley Mk. V.*

[Imperial War Museum

## Armstrong Whitworth Whitley

Purpose: **Bomber.**  
Makers: **Sir W. G. Armstrong Whitworth Aircraft Ltd.**  
Specification: **B.3/34.**  
In operational use: **1939/44.**

Although it was overshadowed by more modern bombing types as the war progressed, the Whitley, one of the mainstays of Bomber Command in September 1939, nevertheless had a distinguished operational record. It was the first British bomber to fly over Berlin, and the first to drop bombs on both Germany and Italy. From the outset of the war it was used as a night bomber and leaflet dropper; later it served with Coastal Command on reconnaissance and anti-submarine work, and it also saw service as a glider tug and paratroop trainer. The Whitley prototype (K 4586) made its maiden flight in March 1936, followed by a second prototype and the first production Mk. Is (795 h.p. Tiger IX), which entered service in March 1937. The 34 Mk. Is were followed by 46 Mk. II (920 h.p. Tiger VIII) and 80 Mk. III, similar except for a ventral "dustbin" turret. After the 40 Mk. IV (1,030 h.p. Merlin IV) and IVA (1,075 h.p. Merlin X) of 1938 came the major production version, the Mk. V, in 1939. Deliveries of the Mk. V continued until June 1943, during which time 1,476 were completed. At the end of the first month of the war a squadron of bombers was transferred to Coastal Command, and in March 1941 a number of Whitley Vs joined the anti-submarine force of that Command. Some of these were later converted for reconnaissance as the G.R. VIII (there was no Mk. VI), and a further 146 aircraft, built from the outset as Mk. VIIIs, were the first Coastal Command aircraft to carry the long range A.S.V. Mk. II radar. In the summer of 1940 a number of Whitley Mk. IIs were supplied to No. 1 Parachute Training School as paratroop trainers and Horsa glider tugs, though they were never used operationally in the latter role. Twelve Mk. Vs were converted in 1942 for civil use by British Airways as freighters.

### BRIEF TECHNICAL DETAILS (Mk. V):

Engines: Two 1,075 h.p. Rolls-Royce Merlin X inlines.  
Span: 84 ft. 0 in.  
Length: 72 ft. 6 in.  
Height: 15 ft. 0 in.  
Weight Empty: 19,350 lb.  
Loaded: 28,200 lb.  
No. in crew: Five.  
Max. Speed: 228 m.p.h. at 17,750 ft.  
Service Ceiling: 17,600 ft.  
Normal Range: 1,500 miles.  
Armament: Five .303 machine guns; up to 7,000 lb. of bombs.





*Lancaster Mk. I.*

[Imperial War Museum

## Avro Lancaster

Purpose: **Heavy bomber.**  
Makers: **A. V. Roe & Co. Ltd.**  
In operational use: **1942/45.**

Apart from the many famous actions in which it participated with distinction, the Lancaster will be remembered as the aeroplane which, more than any other, carried the war back to the German homeland. It grew out of the downfall of the twin-engined Manchester (see page 44), and the prototype Lancaster I (BT 308, which first flew on 9th January, 1941) was originally the Manchester III—triple tail unit and all—modified to take four 1,130 h.p. Rolls-Royce Merlin X engines. The first production Mk. I flew just over nine months later, powered by Merlin XX and incorporating dorsal and ventral gun turrets. Production, begun at Avro, was also delegated to Vickers-Armstrongs, Metropolitan-Vickers, Armstrong Whitworth and Austin Motors. Deliveries to the R.A.F. began just after Christmas 1941; the first squadron (No. 44) was equipped with the type at the beginning of 1942, and it made its first raid in March of that year. Total U.K. production of Mk. I Lancasters eventually topped the 3,500 mark, and during 1942 construction was further sub-contracted to Viceroy Aircraft Ltd. of Malton, Ontario, who delivered in August 1943 the first of over 400 Canadian-built Lancasters. Designated B. Mk. X, these were generally identical with the British Mk. I apart from the employment of Packard-built Merlin 28, 38 or 224 powerplants. Meanwhile there had appeared in Britain a radial-engined version, the Lancaster II. Built by Armstrong Whitworth, it was powered by 1,725 h.p. Bristol Hercules VI or XVI as a safeguard against possible supply difficulties with the Merlin. In the event there proved to be no shortage of Merlins, and only 300 Lancaster IIs were completed. Production continued with the Mk. III, the second major version (about 3,000 built), which was almost identical to the Lancaster I, the primary difference being the adoption of Packard-Merlins to provide the power. The Mk. IV and V eventually became prototypes for the Lincoln bomber, and only a handful of Mk. VI (special conversions of a few Mk. I and III) were completed. The final production Lancaster was the Mk. VII, of which 180 were built by Austin Motors. These had a Martin dorsal turret, re-located further forward, instead of the Nash and Thompson



turret of earlier Lancasters. Variants of the Lancaster I were the Mk. I (F.E.), intended to bomb the Japanese mainland with the "Tiger Force", but too late for operational service, and the Mk. I (Special), which was the designation of those Lancasters specially modified to take the 22,000 lb. "Grand Slam" bomb.

Lancasters figured in many notable adventures during World War 2, but undoubtedly two of their most famous exploits were the dams raid of 1943 and the sinking of the battleship *Tirpitz* in the following year. The breaching of the Moehne, Eder and Sorpe dams was carried out on the night of 17th May, 1943, using Barnes Wallis' specially-developed "bouncing bomb". Eight of the force of 19 Lancasters were lost that night, and amidst several decorations awarded, the C.O. of No. 617 Squadron, Wing Commander Guy Gibson, received the Victoria Cross. Throughout the war, eleven V.Cs. were awarded to Lancaster crew members.

The *Tirpitz* was finally sunk in Tromsø Fjord, Norway, on 12th November 1944, by a force of 31 Lancasters each carrying a 12,000 lb. "Tallboy" bomb (another Barnes Wallis development), though she had been severely crippled in another Lancaster raid two months earlier.

The grand total of Lancaster production reached 7,374 aircraft, of which many continued to serve the R.A.F., on air/sea rescue and maritime reconnaissance duties, long after the end of the war.

#### BRIEF TECHNICAL DETAILS

(Mk. I):

Engines: Four 1,460 h.p. Rolls-Royce Merlin 20 or 22, or 1,640 h.p. Merlin 24 inlines.

Span: 102 ft. 0 in.

Length: 69 ft. 6 in.

Height: 20 ft. 0 in.

Weight Empty: 36,900 lb.

Loaded: 68,000 lb. (70,000 lb. with "Grand Slam").

No. in crew: Seven.

Max. Speed: 287 m.p.h. at 11,500 ft.

Service Ceiling: 24,500 ft.

Max. Range: 1,660 miles.

Armament: Ten .303 Browning machine guns; up to 14,000 lb. of bombs normally.



Night view of a Lancaster Mk. I warming up prior to a raid over enemy territory.

[Imperial War Museum]





*Anson Mk. I trainer.*

[Imperial War Museum]

## Avro Anson

**Purpose:** Reconnaissance and trainer.  
**Makers:** A. V. Roe & Co. Ltd.  
**Specification:** 18/35 (first production).  
**In operational use:** 1939/45.

Few aeroplanes can so thoroughly have lived up to their nicknames as "Faithful Annie". Clearly there can be little wrong with an aeroplane that remains in production or service for more than twenty years, and this was well borne out by the thousands of Ansons which served throughout World War 2 and for many years afterwards. A military development of Imperial Airways' six-seater Avro 652, and incorporating much of the company's earlier experience in building the rugged Fokker F.VII, the Anson design was evolved in 1934 to meet a requirement for a twin-engined shore-based reconnaissance aircraft. Avro's design was accepted that September, and the first prototype (K 4771) flew on 24th March 1935. Four months later 174 Anson Mk. I were ordered, the first of these entering service in March 1936. From then until the outbreak of war Ansons continued to be delivered at a steady rate, although by the latter date they had just begun to be replaced by Hudsons from the U.S.A. Nevertheless the Anson continued to give a good account of itself with Coastal Command—numbering even the Messerschmitt Bf 109 among its victims—and remained on reconnaissance duties until 1942. By this time it had also come into its own as a training aircraft: in 1939 an order had been placed for 1,500 Anson trainers, and in December of that year the type was chosen as a major part of the equipment for the huge Commonwealth Air Training Plan. As a result of this, several new versions appeared as the war progressed, many of them converted or entirely constructed in Canada. The Anson II was Canadian-built with two Jacobs engines: the Mk. III a British conversion to Jacobs; the Mk. IV a

British conversion to Wright Whirlwinds. To conserve strategic materials the Canadian-built Mk. V and VI (450 h.p. Wasp Junior) made extensive use of plywood construction. In Britain, Mk. I is converted as light transports or ambulances included 103 Mk. X, 90 Mk. XI and 246 Mk. XII, the latter employing 425 h.p. Cheetah XV motors. Total Anson production in Britain (which ceased in May 1952) was 8,138 of which 6,704 were built as Mk. I. Canadian factories completed 2,882 Ansons.

### BRIEF TECHNICAL DETAILS

#### (Mk. I):

**Engines:** Two 350 h.p. Armstrong Siddeley Cheetah IX radials.  
**Span:** 56 ft. 6 in.  
**Length:** 42 ft. 3 in.  
**Height:** 13 ft. 1 in.  
**Weight Empty:** 5,375 lb.  
**Loaded:** 8,000 lb.  
**No. in crew:** Six.  
**Max. Speed:** 188 m.p.h. at 7,000 ft.  
**Service Ceiling:** 19,000 ft.  
**Normal Range:** 790 miles.  
**Armament:** Two .303 machine guns; up to 360 lb. of bombs.





*Beaufighter Mk. X with underwing rocket projectiles.*

[Imperial War Museum.]

## Bristol Beaufighter

**Purpose:** \*Night fighter and anti-shipping strike  
**Makers:** Bristol Aeroplane Co. Ltd.  
**Specification:** F.17/39.  
**In operational use:** 1940/45.

Based on the Beaufort (page 18), the first of four Beaufighter prototypes (R 2052) flew on 17th July, 1939, a fortnight after 300 Mk. IF had been ordered. The first reached Fighter Command in September 1940, being fitted two months later with A.I. radar for night fighting. With its high speed, 1,500-mile range and a firepower from its four cannon and six machine guns of 9,600 rounds a minute, the Beaufighter was a most welcome arrival. The Mk. IC joined Coastal Command in the Spring of 1941 and was followed into production by the dihedral-tailplane Mk. IIF—powered by 1,280 h.p. Merlin XX, since the Stirling programme had first call on Hercules production. No Mk. III or IV and only two Mk. V were built, the next major version being the Hercules-powered Mk. VI which came into service in 1942. More than 1,000 Mk. VI were built, including the first rocket-firing version ("Flakbeau") and the first to carry a torpedo ("Torbeau"). In January 1943 the Mk. VI arrived in the Far East, where it quickly acquired the title "Whispering Death" from the Japanese. It also served with U.S.A.A.F. night fighter units. The Mk. VII, VIII and IX did not materialise, and the Mk. XIC (163 built) was an interim version of the VIC without torpedo gear. The last major version (2,231 built) was the Mk. X, probably the finest torpedo and strike aircraft of its day, counting many U-boats among its victims. This version introduced the "thimble" radar nose and compensating dorsal fin, which were afterwards added to certain earlier models. R.A.A.F. Beaufighters included the Fairey-built IC and the Australian-built Mk. 21. The latter (to which the R.N.Z.A.F. Mk. XX was also similar) resembled the Mk. X except for the 0.5-in. gun armament. Beaufighter production at home and abroad totalled 5,962; the type performed the last operational sortie of the European war and remained in R.A.F. service, latterly as a target tug, until 1959.

### BRIEF TECHNICAL DETAILS

(Mk. X):

**Engines:** Two 1,725 h.p. Bristol Hercules XVII radials.

**Span:** 57 ft. 10 in.

**Length:** 41 ft. 4 in.

**Height:** 15 ft. 10 in.

**Weight Empty:** 15,592 lb.

**Loaded:** 25,400 lb.

**No. in crew:** Two.

**Max. Speed:** 320 m.p.h. at 10,000 ft.

**Service Ceiling:** 19,000 ft.

**Max. Range:** 1,750 miles.

**Armament:** Four 20 mm. Hispano cannon and seven .303 Browning machine guns. One 1,650 lb. or 2,127 lb. torpedo, or 8 R.P. and two 250 lb. or 500 lb. bombs.





*Beaufort Mk. I.*

[Imperial War Museum]

## Bristol Beaufort

**Purpose:** Torpedo bomber and reconnaissance.  
**Makers:** Bristol Aeroplane Co. Ltd.  
**Specifications:** M.15/35 and G.24/35.  
**In operational use:** 1939/44.

Based on experience gained with the Blenheim (opposite), the Bristol 152 Beaufort was the Royal Air Force's standard torpedo bomber for four years of the war, and saw action in practically every theatre of operations. Altogether 1,120 Beauforts were built, of which 955 were Mk. Is. Evolved to meet two Air Ministry Specifications, one for a torpedo carrier and the other for a reconnaissance bomber, design work on the Beaufort began in 1937 and the first prototype (L 4441) flew on 15th October 1938. The first production aircraft (Mk. I), incorporating various modifications, entered service with Coastal Command in December 1939, following an initial contract placed in August 1936 for 78 machines. These early aircraft were powered by 1,010 h.p. Taurus II engines. The Beaufort I was followed into production by the Mk. II, of which

### BRIEF TECHNICAL DETAILS

#### (Mk. I):

**Engines:** Two 1,130 h.p. Bristol Taurus VI radials.

**Span:** 57 ft. 10 in.

**Length:** 44 ft. 7 in.

**Height:** 12 ft. 5 in.

**Weight Empty:** 13,107 lb.

**Loaded:** 21,228 lb.

**No. in crew:** Four.

**Max. Speed:** 265 m.p.h. at 6,000 ft.

**Service Ceiling:** 16,500 ft.

**Normal Range:** 1,035 miles.

**Armament:** Four .303 machine guns; up to 2,000 lb. of bombs or mines, or one semi-external 1,605 lb. torpedo.

166 were built with a powerplant of two Pratt & Whitney Twin Wasp radial motors. Later examples of the Mk. II were built as training aircraft, having the dorsal twin-gun turret removed. Beauforts took part in several memorable adventures during World War 2, including the attempt in February 1942 to prevent the escape of the German ships *Scharnhorst*, *Gneisenau* and *Prinz Eugen* up the English Channel. They were eventually superseded in the torpedo bomber role in 1943 by the "Torbeau" Beaufighter.





*Blenheim Mk. IVs over France.*

[Imperial War Museum]

## Bristol Blenheim

**Purpose:** Medium bomber.  
**Makers:** Bristol Aeroplane Co. Ltd.  
**Specification:** B.28/35.  
**In operational use:** 1939/44.

When it first appeared, the Blenheim was fast—some 40 m.p.h. better than the fighters then in service—but in its later career it was not quick enough to adapt to changing requirements, and did not enjoy the successful career which at one time seemed certain. Nevertheless it performed some useful service during the first half of the war, when there was little else available. Designed as a development of the Type 142 "Britain First", the Blenheim was ordered "off the drawing board", the first two production aircraft serving as prototypes; the first of these (K 7033) flew on 25th June, 1936. The initial order was for 150 Mk. I (840 h.p. Mercury VIII), the final figure for this version reaching 1,552, and first deliveries reached the R.A.F. in January 1937. During this time the Blenheim I was widely exported or licence-built in several foreign countries. By the outbreak of World War 2 the short-nosed Blenheim I, though it continued in service for some time afterwards in the Western Desert, had been succeeded at home by the Mk. IV. Meanwhile, some 200 Mk. Is had been modified as Mk. IF night fighters; these, with a four-gun pack fitted under the bomb bay, made the first large-scale use of the new A.I. radar. The Blenheim IV began to supersede the Mk. I in production during 1938, and six squadrons carried this model on the outbreak of war. A much-improved aeroplane, the Blenheim IV continued with Bomber Command until replaced by Bostons and Mosquitos in 1942, though in the Middle and Far East it served for at least a year more. Production of the Mk. IV totalled 1,930 aircraft, of which the first 68 were converted Mk. Is. An extensive redesign to Spec. B.6/40 produced the Mercury 30-powered Blenheim V (at first known briefly as the Bisley), which first flew in 1941 and was followed by 940 production aircraft. Although this model had many refinements, its performance was not spectacular and it was not over-popular with its crews; nevertheless it remained in service in the Far East until late 1943, after which a number were converted to dual control for training purposes. In Canada some 150 examples were built of the Type 149 Bolingbroke, originally based on the Blenheim I.

### BRIEF TECHNICAL DETAILS (Mk. IV):

**Engines:** Two 905 h.p. Bristol Mercury XV radials.  
**Span:** 56 ft. 4 in.  
**Length:** 42 ft. 7 in.  
**Height:** 9 ft. 10 in.  
**Weight Empty:** 9,790 lb.  
**Loaded:** 13,500 lb.  
**No. in crew:** Three.  
**Max. Speed:** 266 m.p.h. at 11,800 ft.  
**Service Ceiling:** 27,260 ft.  
**Max. Range:** 1,460 miles.  
**Armament:** Five .303 Browning machine guns; 1,000 lb. of bombs.





*Mosquito F.B. Mk. VI.*

[Imperial War Museum

## de Havilland Mosquito

**Purpose:** Bomber, fighter, ground attack and reconnaissance.

**Makers:** The de Havilland Aircraft Co. Ltd.

**Specification:** B.1/40 (first production).

**In operational use:** 1941/45.

Adapted with conspicuous success to such widely varied roles as high and low level day and night bomber, long range day and night fighter, fighter-bomber, minelayer, pathfinder, rocket-armed ground attack, shipping strike, high and low altitude photographic reconnaissance, trainer and transport, the supremely versatile D.H.98 Mosquito was one of the outstanding aeroplanes of World War 2. It was conceived in 1938 as an unarmed day bomber, but official interest did not crystallise until December 1939, and in the following March 50 aircraft were ordered. In the post-Dunkirk period, although the Mosquito was temporarily dropped from the M.A.P. programme, the prototype (W 4050) was completed, and flew in November 1940. The fifty aircraft ordered eventually materialised as ten P.R. Mk. I, thirty N.F. Mk. II and ten B. Mk. IV, these being delivered to the R.A.F. between July 1941 and March 1942. The designation T.III was reserved for a trainer version which appeared later, and the B. Mk. V did not go into production. By this time assembly lines had been set up at the Percival, Airspeed and Standard Motors factories, and production of the Mosquito continued with over 1,000 F.B. VI, numerically the most important version, which began to enter service in May 1943. In addition to performing as a day and night intruder the F.B. VI became, with the addition of eight 60-lb. R.Ps. to its armament, a shipping strike aircraft with Coastal Command. This model was followed by a batch of 27 F.B. XVIII, carrying eight rockets and two 500 lb. bombs and with a single 57 mm. (6-pdr.) gun in a separate fairing under the nose. The first high-altitude bomber version was the B.IX (1,290 h.p. Merlin 72), of which 54 were completed, and this was succeeded by 387 examples of the B.XVI (Merlin 72/3 or 76/7), fitted with a pressurised cabin. The successor to the B.XVI, the B.35, did not reach R.A.F. squadrons until after VJ-day. Photo-reconnaissance equivalents were also built, designated P.R.IX, XVI and 34, with cameras and additional fuel in the bomb bay. A crop of night fighter



versions followed the original N.F. Mk. II, including 97 aircraft converted from Mk. II to Mk. XII standard with the new centimetric A.I. radar in a "bull" nose. A higher loaded weight and longer range characterised the N.F. XIII, of which 270 were built; a further 100 Mk. IIs were converted to Mk. XVII with U.S.-built radar; the N.F. XIX (220 built), also using this radar, was otherwise similar to the Mk. XIII; and there were five N.F. XVs, which were B.IVs converted to Merlin 77 engines. The last night fighter was the N.F. 30, similar to the Mk. XIX, also with improved Merlins. Canadian production of the Mosquito ran to just over 1,000 machines, powered by Packard-built Merlins and including the Mk. XX and 25 bombers, Mk. 26 fighter-bomber and Mk. 22 and 27 trainers. Forty Canadian-built reconnaissance Mosquitos were supplied to the U.S.A.A.F., who employed them under the designation F-8. Production of the Mosquito in Australia, also with Packard-Merlin powerplants, reached a total of 178 machines; chief among these were the F.B.40, P.R.40, and T.43. In 1943 about half a dozen Mk. III and IV were "demilitarised" for use by B.O.A.C. on priority freight and mail flights. The grand total of Mosquito production reached well over 13,000 aircraft.

#### BRIEF TECHNICAL DETAILS

##### (B. Mk. XVI):

Engines: Two 1,290 h.p. Rolls-Royce Merlin 73 inlines.  
 Span: 54 ft. 2 in.  
 Length: 40 ft. 6 in.  
 Height: 12 ft. 6 in.  
 Weight Empty: 15,510 lb.  
                   Loaded: 19,093 lb.  
 No. in crew: Two.  
 Max. Speed: 408 m.p.h. at 26,000 ft.  
 Service Ceiling: 37,000 ft.  
 Normal Range: 1,370 miles.  
 Armament: Up to 4,000 lb. of bombs.

##### (N.F. Mk. XIX):

Engines: Two 1,620 h.p. Rolls-Royce Merlin 25 inlines.  
 Span: 54 ft. 2 in.  
 Length: 41 ft. 2 in.  
 Height: 15 ft. 3 in.  
 Weight Empty: 15,970 lb.  
                   Loaded: 21,750 lb. (max.).  
 No. in crew: Two.  
 Max. Speed: 378 m.p.h. at 13,200 ft.  
 Service Ceiling: 28,000 ft.  
 Max. Range: 1,905 miles.  
 Armament: Four 20 mm. Hispano cannon.



*Mosquito P.R. Mk. IV.*

[Imperial War Museum





[Imperial War Museum

## Fairey Albacore

Purpose: **Torpedo bomber.**  
 Makers: **Fairey Aviation Co. Ltd.**  
 Specification: **S.41/36.**  
 In operational use: **1940/44.**

The Fairey Albacore was intended to enter service as a replacement for its famous forebear, the Swordfish (page 26). In the event, the worth of the Swordfish was such that it remained in service alongside, and eventually outlasted, the later design. Nevertheless the Albacore proved to be a very useful aeroplane, and in mid-1942, when its career was at its peak, no fewer than fifteen squadrons were equipped with the type. The design of the Albacore included several improvements over that of the Swordfish, notably a much more powerful engine, an enclosed crew cabin and hydraulic flaps. The prototype (L 7074) flew for the first time on 12th December, 1938, and after a second prototype had been completed production of 98 aircraft began in 1939. The first of these entered F.A.A. service in March 1940, and for the first year of its career the Albacore was operated from shore bases only. Its duties at this time included anti-shipping patrols, minelaying and night bombing. Its first carrier-borne operation—and the first occasion on which it used torpedos—was from H.M.S. *Formidable* in March 1941 at the Battle of Cape Matapan. Albacores were subsequently flown successfully from carriers on convoy escort in the Baltic

### BRIEF TECHNICAL DETAILS:

Engine: One 1,065 h.p. Bristol Taurus II or 1,130 h.p. Taurus XII radial.  
 Span: 50 ft. 0 in.  
 Length: 39 ft. 9½ in.  
 Height: 15 ft. 3 in.  
 Weight Empty: 7,250 lb.  
 Loaded: 10,460 lb.  
 No. in crew: Two or three.  
 Max. Speed: 161 m.p.h. at 4,500 ft.  
 Service Ceiling: 20,700 ft.  
 Normal Range: 930 miles.  
 Armament: One .303 Browning and two .303 Vickers machine guns; six 250 lb. or four 500 lb. bombs or one 1,610 lb. (18-in.) torpedo.

and on anti-submarine missions in the Mediterranean and Indian Ocean. Other land-based operations included artillery spotting, and target-marking with flares during the North African campaign. Production ceased in 1943 after 803 Albacores had been built, but by the end of that year all but two squadrons had been re-equipped with Barracudas or American Avengers. One of these squadrons, however, handed on their Albacores to the R.C.A.F., by whom they were employed in the D-day landings of June 1944.





*Barracuda Mk. II.*

[Imperial War Museum

## Fairey Barracuda

**Purpose:** Torpedo bomber and reconnaissance.  
**Makers:** Fairey Aviation Co. Ltd.  
**Specification:** S.24/37.  
**In operational use:** 1943/45.

Although design of the Barracuda was begun in 1937, the aircraft did not enter F.A.A. service until six years later. Following the abandonment of the Rolls-Royce Exe engine for which it was planned, the Fairey Type 100 (as the aircraft was first known) was adapted to take a Merlin 30 powerplant, and the prototype (P 1767) flew on 7th December, 1940. Concentration of early war-time efforts on a few selected and proven types delayed the Barracuda's production until May 1942, but deliveries of the Mk. I commenced the following September. The 25 Mk. Is were succeeded by a large number of Mk. IIs, produced by Fairey, Boulton Paul, Blackburn and Westland, and incorporating a later Merlin engine. After twelve months of service, Barracudas went into action during the Salerno landings in September 1943, but their big day was 3rd April, 1944, when 42 of them, with a large fighter escort from half a dozen aircraft carriers, attacked the battleship *Tirpitz* in Kaafjord on the north coast of Norway; further attacks on the ship were maintained by F.A.A. Barracudas throughout that summer. The final wartime version was the torpedo-reconnaissance Mk. III, generally similar to its predecessor but carrying an A.S.V. Mk. X scanner in a housing beneath the rear fuselage. The Griffon-powered Mk. V (the IV was not produced) arrived too late for its intended role in the Pacific theatre, and was used mainly on post-war training duties. Total Barracuda production during the war reached 2,582 aircraft. The type was the Royal Navy's first monoplane torpedo bomber, and throughout its career was hung about with as wide a variety of "stores" as any aircraft—bombs, mines, depth charges, torpedos, lifeboats, even containers to carry four "passengers" under its wings. It was also equipped with RATO gear to assist its operation from smaller carriers.

### BRIEF TECHNICAL DETAILS

#### (Mk. II):

**Engine:** One 1,640 h.p. Rolls-Royce Merlin 32 inline.  
**Span:** 49 ft. 2 in.  
**Length:** 40 ft. 6 in.  
**Height:** 15 ft. 5 in.  
**Weight Empty:** 9,350 lb.  
**Loaded:** 13,916 lb.  
**No. in crew:** Three.  
**Max. Speed:** 228 m.p.h. at 1,750 ft.  
**Service Ceiling:** 16,600 ft.  
**Normal Range:** 686 miles.  
**Armament:** Two .303 Vickers 'K' machine guns; six 250 lb. bombs, four 450 lb. depth charges or one 1,620 lb. torpedo.





*Firefly F, Mk. I.*

[Imperial War Museum]

## Fairey Firefly

**Purpose:** Carrier-borne fighter and reconnaissance.  
**Makers:** Fairey Aviation Co. Ltd.  
**Specification:** N.5/40.  
**In operational use:** 1943/45.

Designed to follow the Fulmar (opposite) into naval service, the Fairey Firefly was one of a small band of World War 2 aircraft to employ a (more or less) elliptical wing shape. Its Griffon engine, installed for the first time in a fighter designed for the Fleet Air Arm, brought a much better performance than that of the Fulmar, and the design of the Firefly also made it a much easier machine to handle, both in the air and on the flight deck. Four prototypes were built, the first of these (Z 1826) flying for the first time on 22nd December, 1941. The initial production order was for 200 Firefly Mk. I, though this subsequently developed into a much larger total. Faireys built 297 F. Mk. I, and a further 132 of this version were completed by General Aircraft Limited. Deliveries of the F.I. began in March 1943, the type going into operational service in October of that year, and these were followed by 376 fighter/reconnaissance F.R. Mk. I. A lengthened nose characterised the night-flying N.F. Mk. 2, but only 37 of these were completed before their role was assumed by F.R. Is converted as N.F. I. One of the Firefly's operations was a photographic reconnaissance of the

German battleship *Tirpitz* which led to the final attack and sinking of this important warship. It was chiefly active, during the war years, in the Pacific theatre, and one of its biggest successes was the attack on Japanese-held oil refineries in Sumatra. Altogether the Firefly had a 13-year service career, though most of this was post-war. By mid-1946 most squadrons equipped with the early models had disbanded and production had turned to the Mk. 4; with this and later variants, the Fleet Air Arm continued to use Fireflies until as recently as 1956.

### BRIEF TECHNICAL DETAILS

#### (F. Mk. I):

**Engine:** One 1,730 h.p. Rolls-Royce Griffon IIB or 1,990 h.p. Griffon XII inline.

**Span:** 44 ft. 6 in.

**Length:** 37 ft. 7½ in.

**Height:** 13 ft. 7 in.

**Weight Empty:** 9,750 lb.

**Loaded:** 14,020 lb.

**No. in crew:** Two.

**Max. Speed:** 316 m.p.h. at 14,000 ft.

**Service Ceiling:** 28,000 ft.

**Max. Range:** 1,300 miles.

**Armament:** Four 20 mm. cannon; two 1,000 lb. bombs or eight 60 lb. R.P.s. optional.





*Fulmar Mk. II.*

[Imperial War Museum

## Fairey Fulmar

**Purpose:** Carrier-borne fighter.  
**Makers:** Fairey Aviation Co. Ltd.  
**Specification:** O.8/38.  
**In operational use:** 1940/45.

First announced in action in September 1940, after it had been in service for three months, the Fulmar was a most useful addition to Fleet Air Arm strength, bringing to that service the eight-gun fighter armament already enjoyed by the Royal Air Force. Developed from the Fairey P.4/34 aircraft of 1937, which it closely resembled, the Fulmar prototype (N 1854) flew on 4th January, 1940, and the type went quickly into production. First deliveries of the Fulmar Mk. I, of which 250 were built, began to enter service from June 1940 until the following year, when the Mk. II (1,300 h.p. Merlin 30 and tropical equipment) replaced it on the production lines; 350 of the latter version were completed. By mid-1942 there were 14 squadrons equipped with the Fulmar, and during its career it performed a variety of duties including reconnaissance, escort, convoy protection and night intrusion. In addition to its valuable firepower the Fulmar possessed excellent manoeuvrability, performance and endurance; its only shortcoming was the relatively low speed, due to the additional all-up weight imposed by the carrier equipment and the second crew member. Despite this penalty it gave a good account of itself against all opposition, and was particularly successful against the Italians. During 1943 it began to be replaced by the Sea-fire (page 37), but remained in service in diminishing numbers until 1945, turning its hand in these latter years to yet another role—that of night fighter. The Fulmar was employed in Europe and the Middle and Far East during its wartime career, and although produced in comparatively small numbers was a most useful piece of Fleet Air Arm equipment.

### BRIEF TECHNICAL DETAILS

(Mk. I):

Engine: One 1,080 h.p. Rolls-Royce  
 Merlin VIII inline.  
 Span: 46 ft. 4½ in.  
 Length: 40 ft. 3 in.  
 Height: 14 ft. 0 in.  
 Weight Loaded: 9,800 lb.  
 No. in crew: Two.  
 Max. Speed: 280 m.p.h.  
 Service Ceiling: 26,000 ft.  
 Normal Range: 800 miles.  
 Armament: Eight .303 Browning  
 machine guns.





*Swordfish Mk. I.*

[Imperial War Museum

## Fairey Swordfish

**Purpose:** Torpedo bomber and reconnaissance.  
**Makers:** Fairey Aviation Co. Ltd.  
**Specification:** S.15/33.  
**In operational use:** 1939/45.

Universally known as the "Stringbag", the Fairey Swordfish had nearly a decade of distinguished service with the Royal Navy, finally outliving its intended replacement, the Albacore (page 22). Derived from the private-venture Fairey T.S.R.1, the prototype of the Swordfish (K 4190) was first known as the T.S.R.2 and made its initial flight on 17th April, 1934, powered by a 690 h.p. Pegasus III M.3 engine. The first contract, for 86 Swordfish Mk. I, was placed in April 1935 and the type entered F.A.A. service in July 1936. At the outbreak of World War 2, thirteen front-line squadrons were equipped with Swordfish, and during the war years a further twelve were formed. Later variants were the Mk. II (Pegasus III M.3 or 750 h.p. Pegasus 30), featuring a strengthened lower wing to take eight R.P.s., and the Mk. III, which introduced A.S.V. Mk. X radar in a ventral fairing; both of these appeared in 1943. Some conversions as Mk. IV for Canadian use had the crew positions totally enclosed. Total Swordfish production was 2,391 machines; 1,700 by Blackburn and 691 by Fairey. In its torpedo bombing role, the Swordfish took part in many memorable events of the war: the decimation of the Italian Fleet at Taranto in November 1940,

the Battle of Cape Matapan in March 1941, the crippling of the *Bismarck*, the "Channel Dash" of the German pocket battleships in February 1942, and a long record of shipping destruction from bases in Malta. As the war progressed, and later types began to supersede it, the Swordfish went on to such duties as convoy escort and anti-submarine patrols, which it performed with no less distinction. Its flying qualities, which were legion, are illustrated by the story of one aircraft, so badly damaged by A.A. fire as to be virtually a monoplane, which nevertheless flew back successfully from the Western Desert to Great Britain for repair.

### BRIEF TECHNICAL DETAILS

#### (Mk. I):

**Engine:** One 690 h.p. Bristol Pegasus III M.3 radial.  
**Span:** 45 ft. 6 in.  
**Length:** 35 ft. 8 in.  
**Height:** 12 ft. 4 in.  
**Weight Empty:** 4,700 lb.  
**Loaded:** 7,510 lb.  
**No. in crew:** Two or three.  
**Max. Speed:** 138 m.p.h. at 5,000 ft.  
**Service Ceiling:** 19,250 ft.  
**Normal Range:** 546 miles.  
**Armament:** Two .303 machine guns; one 1,610 lb. torpedo, one 1,500 lb. mine or equivalent load of bombs. (Mk. II: eight 60-lb. R.P. in place of torpedo or bombs.)





*Sea Gladiator.*

[Imperial War Museum

## Gloster Gladiator

Purpose: **Fighter.**  
 Makers: **Gloster Aircraft Co. Ltd.**  
 Specification: **F.7/30.**  
 In operational use: **1939/41.**

A development of the Gauntlet, which it closely resembled apart from its enclosed cockpit and more powerful engine, the Gladiator was the last biplane fighter to serve with the R.A.F. and was originally produced as a private venture. In July 1935, little less than a year after the first prototype (K 5200) had flown, 23 Gladiator Is were ordered by the Air Ministry; a further order for 186 followed two months later, and by the Spring of 1940 production was complete, including an additional batch of 60 aircraft built for the F.A.A. as Sea Gladiators. The latter were powered by the Mercury VIIIA engine, as were the Gladiators Mk. II, which also incorporated certain other refinements. The Gladiator entered service with the R.A.F. in January 1937 and the Sea Gladiator with the Royal Navy in February 1939. In addition to the 60 Sea Gladiators built as such, a further 38 were converted from R.A.F. machines. By 1939 and 1940 respectively these aircraft had largely been replaced by more modern types, but served in small numbers in and around Europe and in the Battle of Britain, not to mention the epic defence of Malta in June 1940 by "Faith", "Hope" and "Charity", three of four Sea Gladiators on loan to the R.A.F.

### BRIEF TECHNICAL DETAILS

(Mk. I):

Engine: One 840 h.p. Bristol Mercury IX radial.

Span: 32 ft. 3 in.

Length: 27 ft. 5 in.

Height: 10 ft. 4 in.

Weight Empty: 3,450 lb.

Loaded: 4,750 lb.

No. in crew: One.

Max. Speed: 253 m.p.h. at 15,000 ft.

Service Ceiling: 33,000 ft.

Normal Range: 425 miles.

Armament: Four .303 Browning machine guns.





*Meteor F. Mk. III.*

[Imperial War Museum]

## Gloster Meteor

**Purpose:** Fighter.  
**Makers:** Gloster Aircraft Co. Ltd.  
**Specification:** F.9/40.  
**In operational use:** 1944/45.

Britain's first—and the Allies' only—jet fighter to see action during World War 2, the Gloster Meteor first entered service during the last year of hostilities, though it had been developing since the early days of the war. Making every use of experience gained with the Gloster G.40 single-jet aeroplane built to Spec. E.28/39, which flew in May 1941, the Meteor design by W. G. Carter and his team employed a twin-engined layout to ensure sufficient thrust from this new form of propulsion. By September 1941 contracts had been placed for eight prototypes and a modest production run of 20 Meteor Mk. Is. It is not widely known that at this time, and until March 1942, the aircraft was known as the Thunderbolt; the change was presumably made to avoid confusion with the American P-47 fighter of that name. First flight of the Meteor was made by the fifth prototype (DG 206) on 5th March 1943, this and the second machine being powered by 1,500 lb.s.t. Halford H.1 turbojets, precursors of the de Havilland Goblin later to be employed in the Vampire. One other prototype had installed a Metrovick F.2 engine, but the remainder were powered by a variety of developments of the Whittle type engine. The first production Meteor F. Mk. I aircraft was supplied to the United States for study purposes, in exchange for an example of America's first jet-propelled aeroplane, the P-59 Airacomet, and only 16 of the 20 Mk. Is found their way into R.A.F. squadron service. The first of these (1,700 lb.s.t. Welland I) were delivered to No. 616

Squadron in July 1944, and at the end of that month made their first sorties against the V.1 flying bombs. At the beginning of 1945, by which time the Mk. III was also in service, Meteors began to extend their activities to the European continent to counteract the appearance of Germany's jet-propelled Me 262. The final few of the 200 Meteor IIIs built, apart from the additional tankage and modified cockpit, also introduced the lengthened engine nacelles later to become standard on post-war Meteors.

### BRIEF TECHNICAL DETAILS

#### (Mk. III):

**Engines:** Two 2,000 lb.s.t. Rolls-Royce Derwent V turbojets.  
**Span:** 43 ft. 0 in.  
**Length:** 41 ft. 4 in.  
**Height:** 13 ft. 0 in.  
**Weight Empty:** 8,800 lb.  
**Loaded:** 12,500 lb.  
**No. in crew:** One.  
**Max. Speed:** 475 m.p.h. at 30,000 ft.  
**Service Ceiling:** 44,000 ft.  
**Normal Range:** 450 miles.  
**Armament:** Four 20 mm. Hispano cannon.





*Halifax Mk. II.*

[Imperial War Museum]

## Handley Page Halifax

**Purpose:** Heavy bomber.  
**Makers:** Handley Page Ltd.  
**Specification:** P.13/36.  
**In operational use:** 1940/45.

A product of the first limited company incorporated in Great Britain for the manufacture of aircraft, the Halifax was the second of the four-engined "heavies", entering service only a few months behind the Stirling. It was evolved from the same Specification that produced the Avro Manchester (page 44), and construction of two prototypes began in January 1938. The first (L 7244) flew in October 1939, and thirteen months later the first Bomber Command Halifax squadron was formed. Production increased through 1941, and "satellite" factories included English Electric (who built 2,145), Rootes (1,070), Fairey (661) and the London Aircraft Production Group (710). The sequence began with the Mk. I Series I, and continued through the Series II (higher loaded weight), Series III (extra fuel), Mk. II Series I (dorsal turret, no beam guns, 1,390 h.p. Merlin XX), Mk. II Series I Special (nose and dorsal turrets removed), and the Mk. II Series IA (redesigned and longer glazed nose, new dorsal turret, 1,390 h.p. Merlin XXII). Later models of the last-named introduced rectangular fins and rudders, and were followed by the bomber/reconnaissance Mk. V which was generally similar to the Mk. II. In mid-1943, such new features as a radial powerplant, retractable tailwheel and, finally, a wing extended from the original 98 ft. 10 in. span, appeared in the Halifax III.

Nearer the end of the war appeared the improved Mk. VI (1,800 h.p. Hercules 100, extra fuel) and VII (Hercules XVI). Some Halifax III, V and VII were equipped for paratrooping, glider towing and agent dropping. Just in service before the war ended, the Mk. VIII was a transport with faired-in gun positions and a detachable 8,000 lb. freight pannier under the fuselage; the final version was the post-war Mk. IX transport. Total Halifax production of 6,176 aircraft included 2,050 Mk. I/II, 2,060 Mk. III, 916 Mk. V, 480 Mk. VI, 395 Mk. VII, over 100 Mk. VIII and the remainder Mk. IX. In addition to its activities in the European theatre with Bomber and Coastal Commands, the Halifax also served with distinction in the Middle East, the only British four-engined bomber to serve there.

### BRIEF TECHNICAL DETAILS

#### (Mk. III):

**Engines:** Four 1,615 h.p. Bristol Hercules XVI radials.  
**Span:** 104 ft. 2 in. **Length:** 70 ft. 1 in.  
**Height:** 20 ft. 9 in.  
**Weight Empty:** 38,240 lb.  
**Loaded:** 54,400 lb.  
**No. in crew:** Seven.  
**Max. Speed:** 282 m.p.h. at 13,500 ft.  
**Service Ceiling:** 24,000 ft.  
**Normal Range:** 1,030 miles.  
**Armament:** Nine .303 Browning machine guns. Up to 13,000 lb. of bombs.





*Hampden Mk. I.*

[Imperial War Museum]

## Handley Page Hampden

Purpose: **Medium bomber**  
 Makers: **Handley Page Ltd.**  
 Specification: **B.9/32.**  
 In operational use: **1939/44.**

Easy to fly, faster than the Whitley or Wellington, and possessing a good range with a respectable bomb load, the Handley Page Hampden ought perhaps to have achieved greater renown than it did. Nevertheless, despite a number of shortcomings, it performed useful service and at the outbreak of World War 2 was one of the R.A.F.'s standard "heavy" bombers, as they were then rated. Handley Page's first monoplane bomber design, the Hampden introduced several novel features, chief among which were its "tadpole" or "frying pan" fuselage—only three feet wide at its fattest point. Only two months after the prototype (K 4240) had flown on 21st June 1936, a production order for 180 Hampdens was placed, with a simultaneous order for 100 Herefords (see page 53). Several modifications, including new Pegasus engines, armament changes and a new transparent Perspex nose, were introduced on the production Hampdens, deliveries of which began in August 1938. By the outbreak of war eight R.A.F. squadrons were equipped with the type, and initially it was employed on daylight operations. One of the Hampden's most serious faults, the lack of adequate defensive firepower, was quickly reflected by heavy losses in these raids, and it was soon switched to the less hazardous business of night bombing. Although a small quantity of Hampdens took part in the first thousand-bomber raid, against Cologne at the end of May 1942, by this time the aircraft was becoming obsolete and it performed its last Bomber Command sortie in the middle of September. It was, however, to take on a new lease of life under

the aegis of Coastal Command as a minelayer and torpedo bomber. For the latter role, in which the Hampden had no small success, the torpedo was carried enclosed within a specially deepened bomb bay. Production of the Hampden Mk. I (there were only two Mk. II) included 500 built by Handley Page, 770 by English Electric and 160 by Canadian Associated Aircraft Ltd.; a few Herefords were also re-engined to Hampden standard.

### BRIEF TECHNICAL DETAILS

(Mk. I):

Engines: Two 965 h.p. Bristol Pegasus XVIII radials.

Span: 69 ft. 2 in. Length: 53 ft. 7 in.

Height: 14 ft. 11 in.

Weight Empty: 11,780 lb.

Loaded: 18,756 lb.

No. in crew: Four.

Max. Speed: 265 m.p.h. at 15,500 ft.

Service Ceiling: 22,700 ft.

Max. Range: 1,990 miles.

Armament: Four .303 machine guns.

Up to 4,000 lb. of bombs.





*Hurricane Mk. IV with underwing rocket projectiles.*

[Hawker Aircraft Ltd.]

## Hawker Hurricane

**Purpose:** Fighter and fighter-bomber.  
**Makers:** Hawker Aircraft Ltd.  
**Specification:** F.36/34.  
**In operational use:** 1939/45.

The first R.A.F. monoplane fighter, and its first capable of more than 300 m.p.h., the Hurricane proved throughout the war to be a highly adaptable and versatile aeroplane. In the Battle of Britain it equipped more than 60 per cent of Fighter Command squadrons; it shot down nearly half the total of enemy aircraft destroyed in the first year of war; in the Western Desert it was an effective light bomber and tank-buster; at sea it was a valuable convoy protector; in the Far East it served as a night fighter; and in Russia it did sterling work with the Soviet forces. Sydney Camm's design of the Hurricane began early in 1934, and an order for one aircraft was placed on 21st February 1935. This prototype (K 5083) flew on 6th November the same year, working up to a speed of 315 m.p.h. during trials. In June 1936 a production order for 600 was placed and the name Hurricane adopted; the first production Mk. I (Merlin II engine) entered service with No. 111 Squadron in December 1937, and by the outbreak of war nearly 500 were in service with eighteen squadrons. During the Battle of Britain, their speed being slightly inferior to that of the Bf 109E, Hurricanes concentrated mainly on the interception of raiding bombers. In mid-1940 production turned to the Mk. IIB (twelve .303 machine guns) and IIC (four 20 mm. cannon), these versions reaching the squadrons during 1941. In October 1941 "Hurribomber" versions of the IIB and IIC made their appearance, carrying two 250 lb. bombs underwing, and in mid-1942 there appeared the Mk. IID, with wings modified to support a pair of 40 mm. cannon for ground attack missions. Although its speed was reduced to 286 m.p.h., and each shot with the 40 mm. guns pulled the aircraft's nose down 5 degrees so that the target had to be re-aligned before the next, the Hurricane IID was nevertheless employed with no small success in the anti-tank role. In March 1943 the Hurricane IV (1,620 h.p. Merlin 24 or 27) entered service, and the following September saw



rocket-carrying versions of the IIB, IIC and IV go into action.

The Sea Hurricane IA, popularly known as the "Hurricat", was a converted Hurricane I, fitted with catapult gear for launching from C.A.Ms. (Catapult Aircraft Merchantmen); at least 800 conversions to Sea Hurricane IA were ordered. It appeared in 1941 with the Merchant Ship Fighter Unit, following Winston Churchill's order for an aircraft to protect convoys from the marauding German Fw 200C Condors. There were no facilities for these to regain ship once they had been launched: the pilot had either to make for a shore base, if within range, or ditch near the convoy and be picked up; later IAs, however, were helped by the addition of two auxiliary fuel tanks. They performed valuable service on Baltic convoys and in the Mediterranean, but had largely disappeared by 1943. The chief Fleet Air Arm version was the Sea Hurricane IB, equipped with normal arrestor gear for carrier operation, which became operational in 1942. The Mk. IC was similar with a four-cannon armament, as was the Mk. IIC, except for a Merlin XX powerplant.

The Hurricanes supplied to Russia were modified as two-seat ground attack aircraft with tandem cockpits, serving with the French "Normandie" squadron operating with the Russian forces.

#### **BRIEF TECHNICAL DETAILS**

##### **(Mk. IIB):**

Engine: One 1,280 h.p. Rolls-Royce Merlin XX inline.

Span: 40 ft. 0 in.

Length: 32 ft. 3 in.

Height: 8 ft. 9 in.

Weight Empty: 5,800 lb.

Loaded: 7,470 lb.

No. in crew: One.

Max. Speed: 339 m.p.h. at 22,000 ft.

Normal Range: 460 miles.

Armament: Twelve .303 Browning machine guns. Two 250 lb. or 500 lb. bombs and/or eight R.P.

Hurricane production was delegated to the Gloster Aircraft Co. and the Canadian Car and Foundry Co., who built 2,750 and over 1,400 respectively, the Canadian versions being designated Mks. X, XI, XII and XIIA and powered by Packard-built Merlin engines. Sea Hurricane conversions were carried out by General Aircraft Ltd. and Austin Motors Ltd. Hawker production of Hurricanes amounted to over 14,000 aircraft.



*One of the "Hurricat" conversions aboard a merchant vessel.*

[Imperial War Museum]





*Tempest F. Mk. V.*

[Imperial War Museum]

## Hawker Tempest

**Purpose:** Fighter and fighter-bomber.  
**Makers:** Hawker Aircraft Ltd.  
**Specification:** F.10/41.  
**In operational use:** 1944/45.

Proposals for a Mk. II version of the Typhoon (page 34), incorporating superior cockpit view and tail assembly, an improved Sabre engine driving a 4-blade airscrew, and a thin elliptical wing, were submitted to the Ministry of Aircraft Production in August 1941. Whilst it was under discussion, a Centaurus-powered Tornado prototype was completed, but with the cancellation of the Tornado the Centaurus programme was transferred to the Typhoon; the Bristol engine would not fit into the Typhoon I, so it graduated to the Mk. II project. Hawkers had already been asked to construct two prototypes, one with the Sabre II and one with a Rolls-Royce Griffon, and to avoid confusion the name Tempest was adopted for the new venture. In June 1942 the Air Ministry proposed six prototypes: one with the Sabre IV (Tempest Mk. I); two with the Centaurus (Mk. II); two with the Griffon (Mks. III and IV); and one with the Sabre II (Mk. V). However, Hawkers felt themselves too heavily committed to take on more than three prototypes, and decided to concentrate on the Mks. I, II and V. The prototypes of these three versions made their respective maiden flights on 24th February 1943, 28th June 1943 and 2nd September 1942. As the Sabre II was already tried and tested, the Tempest V was the first to go into production—and, as it turned out, the only version to see war service. Eight hundred Mk. Vs were completed, the first entering R.A.F. service in January 1944. Although the Tempest followed the Typhoon's train-busting trail across Europe, it is probably best remembered for its work against the V.1 flying bombs over Southern England and the Channel, when in the three months June-September 1944 Tempest squadrons disposed of 638 of these devices. With the 2nd Tactical Air Force in Europe, the Tempest's excellent performance enabled it to destroy the very creditable total of 20 Me 262s. The Tempest II (2,500 h.p. Centaurus V or VI) entered production in August 1944, and 450 were eventually built, but they did not reach R.A.F. squadrons until three months after the end of the war. They were followed by 142 Tempest VI (2,700 h.p. Sabre VA).

### BRIEF TECHNICAL DETAILS

(Mk. V):

**Engine:** One 2,420 h.p. Napier Sabre IIB inline.

**Span:** 41 ft. 0 in.

**Length:** 33 ft. 8 in.

**Height:** 16 ft. 1 in.

**Weight Empty:** 9,250 lb.

**Loaded:** 11,400 lb.

**No. in crew:** One.

**Max. Speed:** 435 m.p.h. at 17,000 ft.

**Service Ceiling:** 36,000 ft.

**Max. Range:** 1,300 miles.

**Armament:** Four 20 mm. Hispano cannon; two 1,000 lb. bombs or eight R.P.





*Typhoon Mk. IB.*

[Imperial War Museum]

## Hawker Typhoon

**Purpose:** Fighter and ground attack.

**Makers:** Hawker Aircraft Ltd.

**Specification:** F.18/37

**In operational use:** 1941/45.

Although not particularly successful in the interceptor role for which it was originally conceived, the Typhoon subsequently became probably the best ground attack aeroplane on either side during the Second World War. Design began in March 1937, and on 30th August 1938 an order was placed for four prototypes—two "Type N" (Napier Sabre) and two "Type R" (Rolls-Royce Vulture)—subsequently named Typhoon and Tornado. The Tornado became a victim of the Vulture cutback, and only one, apart from the two prototypes, was completed. The prototype Typhoon (P 5212) made its maiden flight on 24th February 1940, but work was shelved after the fall of France to concentrate on the Hurricane, and the first Typhoon IA did not fly until 26th May 1941. The IA (twelve .303 machine guns) began to join R.A.F. squadrons in July 1941. Meanwhile, in October 1940, the Air Ministry had asked for the urgent production of a fighter to counter the "tip and run" raids by Fw 190s, which were outrunning the Spitfire. The Typhoon had the necessary speed, and Hawkers quickly produced the Mk. IB, armed with four 20 mm. cannon, which entered service in September 1941. During the remainder of that year, and through 1942, the new "Tiffy" did useful work against the Fw 190, and was the first to shoot down the new Me 210; it also began steadily to increase its activities abroad, making low level attacks on Channel shipping and ground targets in Europe. Proof of its genuine low level flying lay in the twig-bedecked wings of many of the returning aircraft. The Typhoon's range was augmented by external tanks, and later aircraft began to carry two 1,000 lb. bombs—the heaviest load of

### BRIEF TECHNICAL DETAILS

(Mk. IB):

Engine: One 2,200 h.p. Napier Sabre IIA inline.

Span: 41 ft. 7 in.

Length: 41 ft. 11 in.

Height: 15 ft. 3½ in.

Weight Empty: 8,800 lb.

Loaded: 11,300 lb.

No. in crew: One.

Max. Speed: 417 m.p.h. at 20,500 ft.

Service Ceiling: 34,000 ft.

Max. Range: 1,000 miles.

Armament: Four 20 mm. Hispano cannon; two 500 lb. or 1,000 lb. bombs or eight R.P.

any single-engined aircraft at that time—or eight rocket projectiles. By D-day, the R.A.F. had 26 Typhoon IB squadrons; they made possible in no small measure the break-through to the Rhine, and on one day—7th August, 1944—Typhoons alone destroyed 135 enemy tanks. "Cab-rank" attacks, by waves of Typhoons constantly in the air waiting to be given a target, became a commonplace. Production, most of which was handled by the Gloster Aircraft Co. Ltd., totalled 3,330 aircraft, of which all but the first few hundred were the Mk. IB.





*Stirling Mk. I.*

[Imperial War Museum

## Short Stirling

Purpose: **Heavy bomber.**  
Makers: **Short Bros. Ltd.**  
Specification: **B.12/36.**  
In operational use: **1940/45.**

Although to the Stirling goes the distinction of being the first four-engined Allied bomber to enter service during World War 2, it was a victim of the failure of the planning staff to foresee accurately the requirements of a few years ahead, and did not achieve the prominence of its later team-mates, the Halifax and Lancaster. Unlike these, however, the Stirling did start out as a four-engined design. Preceded in 1938 by the S.31, a half-scale trial model, the S.29 Stirling prototype (L 7600), powered by Hercules II motors, made its maiden flight during May 1939 but was destroyed on landing. The first production Stirling Mk. I, now with the more powerful Hercules XI, flew twelve months later and was entering service in August 1940, though only a handful of aircraft were delivered during that year. Production was gradually stepped up during 1941, the first "heavy" raid on enemy-occupied territory being made during February. Although the Stirling had a fairly good defensive armament and could absorb a considerable amount of punishment, the increasing opposition met over the continent led to its being diverted mainly to night operations by the beginning of 1942. During 1941 three Stirlings, designated Mk. II, were tested with American Wright Cyclone engines as a safeguard against a possible shortage of Hercules, but this proved unnecessary and the next major production version was the Mk. III, with uprated Hercules engines, improved performance and a new dorsal turret. Although large numbers of this version were produced, by 1943 the Stirling was becoming outdated as a bomber and in its next form, the Mk. IV, it became a transport and glider tug for the Horsa. The final version, also a transport, was the Mk. V, featuring a lengthened and "solid" nose. Production of the Stirling, including 756 Mk. I, 875 Mk. III, 577 Mk. IV and 160 Mk. V, reached a grand total of 2,375 aircraft.

### BRIEF TECHNICAL DETAILS

(Mk. I):  
Engines: Four 1,590 h.p. Bristol Hercules XI radials.  
Span: 99 ft. 1 in.  
Length: 87 ft. 3 in.  
Height: 22 ft. 9 in.  
Weight Empty: 44,000 lb.  
Loaded: 59,400 lb.  
No. in crew: Seven or eight.  
Max. Speed: 260 m.p.h. at 10,500 ft.  
Service Ceiling: 20,500 ft.  
Normal Range: 1,930 miles.  
Armament: Eight .303 Browning machine guns. Up to 14,000 lb. of bombs.





*Sunderland G.R. Mk. V.*

[Imperial War Museum]

## Short Sunderland

**Purpose:** Maritime patrol and reconnaissance.  
**Makers:** Short Bros. Ltd.  
**Specification:** R.2/33.  
**In operational use:** 1939/45.

Evolved as a monoplane replacement for the biplane flying boats of the early 'thirties, the S.25 Sunderland was basically a military development of the famous pre-war "C" class Empire boats. It retained the two-deck layout, with officers' wardroom, crew's quarters, sleeping quarters, galley and workshop, and the prototype (K 4774) first flew in October 1937. The Mk. I (Pegasus XXII engines) entered service in the following summer, and 75 of this version were built. On the outbreak of World War 2 three squadrons were equipped with the type; they did much valuable work on maritime patrol, but Sunderlands also performed a considerable amount of transport work, evacuating hundreds from Norway, Greece and Crete. The Sunderland played a notable part in the defeat of the U-boat, claiming its first in January 1940, and was able to give a good account of itself in the air. Its capacity for defence—armament increased considerably with successive versions—earned it the nickname of "Flying Porcupine", and it included many Ju 88s in an impressive list of "kills". Succeeding the Mk. I in production at the end of 1941 came the Mk. II, 58 of which were built. Later examples incorporated a two-gun dorsal turret, and this version also introduced the Pegasus XVIII as powerplant. The Mk. III, whose prototype flew in June 1942, was by far the most numerous (407 built) and introduced various refinements, including an improved planing hull. The

### BRIEF TECHNICAL DETAILS

#### (Mk. V):

**Engines:** Four 1,200 h.p. Pratt & Whitney Twin Wasp R-1830 radials.  
**Span:** 112 ft. 9½ in.  
**Length:** 85 ft. 4 in.  
**Height:** 32 ft. 10½ in.  
**Weight Empty:** 37,000 lb.  
**Loaded:** 60,000 lb.  
**No. in crew:** Thirteen.  
**Max. Speed:** 213 m.p.h. at 5,000 ft.  
**Service Ceiling:** 17,900 ft.  
**Normal Range:** 2,980 miles.  
**Armament:** Two .50 and eight or twelve .303 machine guns; up to 2,000 lb. of bombs.

Sunderland IV, 31 of which were completed, became the Seaford, the final production Sunderland (143 built) being the Mk. V. Total Sunderland production, which ended in October 1945, thus reached over 700 aircraft, of which 250 were completed by Blackburn Aircraft Ltd. In the early war years the Sunderland shortage was augmented by a few Empire boats from British Airways; these were returned when the situation eased, and in 1943 the procedure was reversed by the release of a batch of "demilitarised" Sunderlands to the civil operator.





*Seafire Mk. III.*

[Imperial War Museum

## Supermarine Seafire

**Purpose:** Carrier-borne fighter and reconnaissance.

**Makers:** Vickers-Armstrongs Ltd. (Supermarine Division).

**In operational use:** 1942/45.

The Royal Navy, lacking a fleet fighter of good performance, decided following the successful sea operation of the Hurricane to adopt the Spitfire for carrier service. Initial deck landing trials were undertaken late in 1941, aboard H.M.S. *Illustrious*, with a standard Spitfire VB fitted with an arrester hook and catapult gear, and an order ensued for the conversion of some 140 "hooked" Spitfire VBs under the new name Seafire IB. An additional 48 Mk. IB were built as such, and this version entered service in June 1942. No wing folding was employed on this or the Mk. IIC, a similar conversion of the Spitfire VC (except that the C and not the B wing was used). There were 372 Mk. IIC built. The Seafire III was by far the most important version (1,220 built), entering service in 1943 and being produced in photographic reconnaissance as well as fighter versions. The Mk. III was a considerable improvement over earlier Seafires, its capacity for wing folding greatly facilitating handling and storage, and was rated by some authorities as the best naval fighter anywhere in the world at the time. Parallel with the progress of the Spitfire, the Seafire was developed under Specification N.4/43 to take a Griffon powerplant, and this line began with the Griffon VI-powered Seafire XV which first flew in 1944 and eventually ran to 384 machines. The Mk. XV entered service in May 1945, but was still working up for Pacific operation when the war ended. Postwar development continued with the Mk. XVII, 45, 46 and 47, Seafires continuing in service to the Korean war. They began to be replaced from 1951, though the last F.A.A. squadron did not disband until 1954.

### BRIEF TECHNICAL DETAILS

#### (F. Mk. III):

**Engine:** One 1,470 h.p. Rolls-Royce Merlin 55 inline.

**Span:** 36 ft. 8 in.

**Length:** 30 ft. 0 in.

**Height:** 11 ft. 2 in.

**Weight Empty:** 5,400 lb.

**Loaded:** 7,100 lb.

**No. in crew:** One.

**Max. Speed:** 352 m.p.h. at 12,250 ft.

**Service Ceiling:** 33,800 ft.

**Normal Range:** 465 miles.

**Armament:** Two 20 mm. cannon and four .303 machine guns. One 500 lb. or two 250 lb. bombs optional.





*A line-up of Spitfire Vs in the Western Desert during the early years of the war.*

[Imperial War Museum]

## Supermarine Spitfire

**Purpose:** Fighter, fighter-bomber and reconnaissance.

**Makers:** Vickers-Armstrongs Ltd. (Supermarine Division).

**Specification:** F.37/34.

**In operational use:** 1939/45.

The recipient of more superlatives than any other aeroplane ever flown, Reginald Mitchell's classic Spitfire was built in greater numbers than any other British aircraft, appeared in some forty major versions and was the only British type in continuous production throughout World War 2. Evolved as a private venture from the unsuccessful Supermarine F.7/30, a Goshawk-powered machine with a cranked wing and fixed undercarriage, the new Spitfire was far ahead of the Air Ministry's F.5/34 Specification for an eight-gun monoplane fighter, and the later 1934 Specification was "written round" it. On 5th March 1936 at Eastleigh, Hampshire, Vickers' chief test pilot "Mutt" Summers took the Spitfire prototype (K 5054) on its maiden flight, the new Merlin C engine giving it a maximum speed not far short of 350 m.p.h. Before the Spitfire's career had ended, the excellence of the basic design, coupled with the remarkable development of the Merlin engine and its successor, the Griffon, had added more than 100 m.p.h. to this figure. Mitchell died before his progeny entered R.A.F. service, but not before he had seen, in 1937, two substantial contracts placed for the type. Deliveries of the Spitfire Mk. I began in 1938, and by the outbreak of war nine squadrons were equipped and orders stood at the then impressive total of 2,160 aircraft. While the Mk. Is were being delivered, an intensive development programme was already under way. In 1940 the Mk. II (1,175 h.p. Merlin XII) entered service; 920 examples of this version were followed by the P.R. IV (there was only one Mk. III) and the Mk. V fighter, one of the most widely used variants. The Spitfire utilised one of three basic wings: the A with eight .303 machine guns, the B with four 20 mm. cannon, and the "universal" C wing, first used on the Mk. VC. The first high altitude development was the long-span (40 ft. 2 in.) and pressurised Mk. VI. The Mk. VII, another high-altitude model, incorporated an extensively redesigned fuselage and a Merlin 60 powerplant which pushed the speed for the first time above 400 m.p.h. Only 140 of these were built, but the figure for the Mk. VIII rose to 1,658, including both high and low level fighter versions. Before the Mk. VIII entered service, a "marriage of convenience" of the Merlin 60 engine and the Mk. VC airframe had produced, in 1942, the Spitfire IX. Combined production of the V and IX totalled 5,609 aircraft. Large numbers of Packard-built Merlin engines were supplied from the United States during the war; these were not, however,



interchangeable with the British Merlins, and thus gave rise to a new series of Mark numbers. The first of these was the Mk. XVI, otherwise similar to the IX, of which there were 1,054. The introduction of the new Griffon engine marked yet another phase of Spitfire development, the first in this series being 100 Griffon II-powered Mk. XII. The Mk. XIV (1,055 built, including a batch of clipped-wing F.R. XIVE) was based on the standard Mk. VIII airframe, strengthened to take the Griffon 65 and having an enlarged vertical tail; final examples of the Mk. XIV were the first to introduce the cut-down rear fuselage and "teardrop" cockpit hood. To a Spitfire XIV (of 401 squadron) fell the distinction of destroying the first Me 262, and this was also the version chiefly successful against the V.1 flying bombs. Photographic Spitfires included the Mk. IV, VII, X, XI, XIII and XIX, the last of these being the fastest of all with a maximum speed of 460 m.p.h. Other versions too late to see war service included the Mk. XVIII, XX, 21, 22 and 24. The Spitfire, although it took second place to the Hurricane in the Battle of Britain, was a much more adaptable machine. Its flying qualities were legion, and it is doubtful if a warplane more popular with its pilots—and unpopular with its opponents!—has ever been conceived. During its 12-year career, more than 20,000 Spitfires of all versions were built.

#### BRIEF TECHNICAL DETAILS

##### (Mk. VB):

Engine: One 1,440 h.p. Rolls-Royce Merlin 45 inline.  
 Span: 36 ft. 10 in.  
 Length: 29 ft. 11 in.  
 Height: 11 ft. 5 in.  
 Weight Empty: 5,065 lb.  
                   Loaded: 6,650 lb.  
 No. in crew: One.  
 Max. Speed: 374 m.p.h. at 13,000 ft.  
 Service Ceiling: 37,000 ft.  
 Max. Range: 1,135 miles.  
 Armament: Two 20 mm. cannon and four .303 machine guns. One 500 lb. or two 250 lb. bombs optional.

##### (Mk. XIV):

Engine: One 2,050 h.p. Rolls-Royce Griffon 65 inline.  
 Span: 36 ft. 10 in.  
 Length: 32 ft. 8 in.  
 Height: 13 ft. 6 in.  
 Weight Loaded: 8,490 lb.  
 No. in crew: One.  
 Max. Speed: 448 m.p.h. at 26,000 ft.  
 Service Ceiling: 44,500 ft.  
 Max. Range: 850 miles.  
 Armament: Two 20 mm. cannon and four .303 machine guns. Up to 1,000 lb. of bombs.



*Spitfire P.R. Mk. XI. Note the pointed fin and rudder.*

[Imperial War Museum]





[Imperial War Museum]

## Supermarine Walrus

**Purpose:** Reconnaissance and air/sea rescue.  
**Makers:** Supermarine Aviation Works  
 (Vickers) Ltd.  
**Specification:** 2/35 (first production).  
**In operational use:** 1939/45.

Few people familiar with the appealing lines of Reginald Mitchell's beautiful Spitfire would believe him capable of designing such an aesthetic misfit as the Walrus amphibian. Yet in its way the lumbering "Shagbat", as the Walrus was popularly known, was regarded with quite as much affection as its illustrious stablemate. Beginning life as the Seagull V, a private venture development of an earlier Supermarine amphibian, the prototype (K 4797) first flew on 21st June, 1933. It was immediately ordered by the Australian Government, and in August 1935 the first Air Ministry contract, for 12 Mk. I powered by Pegasus IIM.2, was placed. This was soon followed by a much larger repeat order, and eventually 287 Mk. I Walruses were completed. Entering Fleet Air Arm service in July 1936, this version became the first amphibian to be catapulted from a warship and served aboard R.N. battleships and cruisers as a fleet spotter, convoy patrol and anti-submarine aircraft. In addition to the Supermarine-built Mk. I, 453 Mk. II Walruses were built by Saunders-Roe. These machines,

### BRIEF TECHNICAL DETAILS

(Mk. II):

Engine: One 775 h.p. Bristol Pegasus VI radial.

Span: 45 ft. 10 in.

Length: 37 ft. 7 in.

Height: 15 ft. 3 in.

Weight Empty: 4,900 lb.

Loaded: 7,200 lb.

No. in crew: Four.

Max. Speed: 135 m.p.h. at 4,750 ft.

Service Ceiling: 18,500 ft.

Normal Range: 600 miles.

Armament: Two Vickers K machine guns.

wooden-hulled and powered by a different mark of Pegasus engine, served primarily with the R.A.F. Air/Sea Rescue service during the early part of the war. Throughout their career, which did not terminate until after VJ-day, Walruses were flown in practically every corner of the world, from East Africa to Iceland, Hong Kong to the West Indies. Apart from the innumerable lives saved by these aircraft, the spotting and other work performed by them throughout the Second World War was invaluable to the Allied cause.





*A formation of Wellington Mk. Is.*

[Imperial War Museum]

## Vickers Wellington

**Purpose:** Medium bomber and recon.  
**Makers:** Vickers-Armstrongs Ltd.  
**Specification:** B.9/32.  
**In operational use:** 1939/45.

One of the most outstanding aeroplanes of the war, the Wellington was noteworthy for the fantastic amount of punishment it could withstand, thanks largely to its revolutionary geodetic construction devised by Barnes Wallis of "dams" fame. The prototype (K 4049), powered by two 850 h.p. Bristol Pegasus X, first flew on 15th June, 1936, and a production order was placed the same year. The Mk. I, modified to accommodate twice the original bomb load and powered by two 1,000 h.p. Pegasus XVIII, entered service in October 1938, followed by the IA and IC (the IB was not produced), and by the outbreak of war there were six squadrons operational with the R.A.F. Wellingtons made the first raid of the war, against Wilhelmshaven, on 4th September, 1939; from December 1939 they switched to night operations and were the main night bombing type of the R.A.F. until the arrival of the "heavies". They were also the first to drop the 4,000 lb. "blockbuster" bomb. Next in production were the Mk. II (Merlin X, 400 built), Mk. III (Hercules XI, 1,519 built) and Mk. IV (Pratt & Whitney Twin Wasp, 221 built). The Wellingtons V, VI and VII were for the most part experimental, the next big production version being the Mk. VIII for Coastal Command. As early as 1940, a few modified Mk. Is had successfully performed "de-gaussing" and minelaying duties; now the Mk. VIII, of which 394 were completed, emerged as a torpedo-bomber and general reconnaissance aircraft, carrying a Leigh Light in the bomb bay and external radar. From this were developed the G.R. XI, with an enclosed "chin" radome, and the pure-reconnaissance G.R. XII. The G.R. XIII and XIV were parallel versions with uprated Hercules engines. The principal production Wellington was the Mk. X, of which 3,804 were built from 1943 onwards. Transport conversions of the Mks. I, IA and IC, with turrets removed, the bomb bay sealed off and seats installed, became the C.I, C.XV and C.XVI. The Mk. IX was a "one-off" conversion of a IC as a troop transport. Night fighter training versions of the Mks. XI and XIII became the T.XVII and T.XVIII. Total Wellington production reached 11,461 aircraft, many serving as engine and armament test-beds.

### BRIEF TECHNICAL DETAILS (Mk. X):

**Engines:** Two 1,585 h.p. Bristol Hercules VI radials.  
**Span:** 86 ft. 2 in.    **Length:** 64 ft. 7 in.  
**Height:** 17 ft. 6 in.  
**Weight Empty:** 26,325 lb.  
**Loaded:** 31,500 lb.  
**No. in crew:** Six.  
**Max. Speed:** 255 m.p.h. at 14,500 ft.  
**Service Ceiling:** 24,000 ft.  
**Normal Range:** 1,325 miles  
**Armament:** Six .303 Browning machine guns; up to 6,000 lb. of bombs.





*Lysander Mk. I.*

[Imperial War Museum]

## Westland Lysander

**Purpose:** Army co-operation.  
**Makers:** Westland Aircraft Ltd.  
**Specification:** A.39/34.  
**In operational use:** 1939/44.

Known to all with great affection as the "Lizzie", the Lysander, with its lozenge-shaped high braced wings and inordinately large "spatted" undercarriage, was a familiar sight in European skies during the early years of World War 2. Two prototypes were built to the original Air Ministry Specification and the first of these, K 6127, made its maiden flight in June 1936. Three months later an initial production contract was placed for 144 machines, and the first Lysanders Mk. I entered R.A.F. service towards the end of 1938. During the early war years the type was in widespread use in France and North Africa, though in 1941, as the Curtiss Tomahawk began to replace it for Army co-operation, production was phased out and ceased in January 1942. Thereafter the Lysander gradually transferred to other duties. Several Mk. I and II (905 h.p. Perseus XII in the latter) were converted for target towing, and many other Mk. II for air/sea rescue and glider towing. A considerable number of Mk. IIIs (870 h.p. Mercury 20 or 30) were built as target tugs, and also worthy of mention is the modified Lysander III for the Special Air Service. Fitted with a jettisonable auxiliary fuel tank under the belly, this version was used for dropping British intelligence agents into enemy-occupied territory. The Lysander was also employed on occasion as a light bomber, carrying small bombs or supply containers on the stub-wings attached to its wheel spats. Total production reached 1,593 aircraft, comprising 131 Mk. I, 433 Mk. II and 804 Mk. III built in Great Britain, and 225 by the National Steel Car Corporation in Canada.

### BRIEF TECHNICAL DETAILS

#### (Mk. I):

**Engine:** One 890 h.p. Bristol Mercury XII radial.

**Span:** 50 ft. 0 in. **Length:** 30 ft. 6 in.

**Height:** 11 ft. 6 in.

**Weight Empty:** 4,065 lb.

**Loaded:** 5,920 lb.

**No. in crew:** Two.

**Max. Speed:** 229 m.p.h. at 10,000 ft.

**Service Ceiling:** 26,500 ft.

**Normal Range:** 500 miles.

**Armament:** Four .303 machine guns; up to six small bombs.





[Imperial War Museum]

## Airspeed Horsa

Purpose: Transport glider.  
Span: 88 ft. 0 in.

Entering Army service in the late autumn of 1942, the A.S.51 Horsa was the first British glider to have a tricycle undercarriage. The main wheels of this were jettisoned after take-off, touch-down being made on the castoring nosewheel and a sprung central skid. With a capacity for 30 men or an equivalent freight load, the Horsa had an all-up weight of 15,500 lb. It was first used operationally in the invasion of Sicily in the summer of 1943, and subsequently with great success on D-day and at Arnhem. A number of Horsas were at one time used by the U.S. forces as a kind of "reverse Lend-Lease".



Albemarle S.T. Mk. I.

[Imperial War Museum]

## Armstrong Whitworth Albemarle

Purpose: Special transport and glider tug.  
Engines: Two 1,590 h.p. Bristol Hercules XI  
radials.  
Span: 77 ft. 0 in.  
Max. Speed: 265 m.p.h. at 10,500 ft.

Taken over by Armstrong Whitworth from the Taurus-powered Bristol 155 designed to Spec. B.18/38 for a medium bomber (which explains some similarity to the Beaufort — page 18, the Albemarle finally served only as a special transport and glider tug. The first British military aircraft with a tricycle undercarriage, it entered service in January 1943, seeing action in the Sicily, Normandy and Arnhem landings. Six hundred Albemarles were built, serving in the approximate ratio of two transports to one glider tug. Principal service versions were the Mk. I, II, V and VI.





*Manchester Mk. I.*

[Imperial War Museum]

## Avro Manchester

*Purpose:* Heavy bomber.  
*Engines:* Two 1,760 h.p. Rolls-Royce Vulture inlines.  
*Span:* 90 ft. 1 in.  
*Max. Speed:* 265 m.p.h. at 17,000 ft.

Designed to A.M. Spec. P.13/36 for a twin-engined medium bomber built around two of the new Rolls-Royce Vulture engines, the Manchester had a good performance, including a range of 1,200 miles with a maximum bomb load of 10,350 lb. The prototype (L 7246) flew on 25th July, 1939, and the 200 production Manchesters were operational from November 1940 to June 1942. The first prototype and the Mk. IA had twin fins and rudders, the second prototype and the Mk. I a third central fin. The brief and unfortunate service life of the Manchester was the fault not of the basic design—which was developed into the successful Lancaster—but of the under-developed and unreliable Vulture engines which powered it.



*York Mk. I.*

[Imperial War Museum]

## Avro York

*Purpose:* Transport.  
*Engines:* Four 1,280 h.p. Rolls-Royce Merlin XX inlines.  
*Span:* 102 ft. 0 in.  
*Max. Speed:* 298 m.p.h. at 21,000 ft.

Based on the Lancaster wing and powerplant, with a completely new fuselage and tail assembly, the York was designed to A.M. Spec. C.1/42 and made its maiden flight in the same year. With the wartime dependence upon the United States for the supply of transport aircraft, the York had a low production priority, and until 1945, when the first fully-equipped transport squadron was formed, the few aircraft delivered were employed as V.I.P. transports and flying conference rooms. The bulk of the 257 Yorks built were delivered after the end of the war, and the type played a prominent part in the Berlin Airlift of 1949.





[Imperial War Museum]

## Blackburn Botha

*Purpose:* Reconnaissance and torpedo-bomber.  
*Engines:* Two 880 h.p. Bristol Perseus X or  
 930 h.p. Perseus XA radials.  
*Span:* 59 ft. 0 in.  
*Max. Speed:* 249 m.p.h. at 5,500 ft.

Selected, with the Beaufort and Lerwick (pages 18 and 58), for the Coastal Command re-equipment programme in the autumn of 1939, the Botha was seriously under-powered and had only a brief and scarcely a successful career. Designed to A.M. Spec. M.15/35, it entered service just after the beginning of the war but was withdrawn from operational employment some 18 months later. Remaining Bothas continued in service until 1944 as navigation and gunnery trainers.



[Imperial War Museum]

## Blackburn Roc

*Purpose:* Fighter.  
*Engine:* One 830 h.p. Bristol Perseus XII radial.  
*Span:* 46 ft. 0 in.  
*Max. Speed:* 224 m.p.h. at 6,500 ft.

The first fleet fighter to carry a power-operated turret, the Roc, like its R.A.F. counterpart the Defiant, had a short life in its intended role and was quickly relegated to training and target-towing duties. Designed to Spec. O.30/35, the first Roc flew on 23rd December 1938 and the type entered Fleet Air Arm service in February 1940. Boulton Paul, who designed the 4-gun turret, also completed the 136 Rocs that were built.





[Imperial War Museum]

## Blackburn Skua

**Purpose:** Fighter and dive bomber.  
**Engine:** One 830 h.p. Bristol Perseus XII radial.  
**Span:** 46 ft. 2 in.  
**Max. Speed:** 225 m.p.h. at 6,500 ft.

To the Skua goes the distinction of claiming the first German aircraft (a Do 18) destroyed by the Fleet Air Arm in World War 2. Like the Roc, which it much resembled, it was something of a pioneer, being the Fleet Air Arm's first operational monoplane. Designed to A.M. Spec. O.27/34, the Skua entered service in November 1938 and three squadrons were equipped by the outbreak of war. In 1941 they were replaced as front line aircraft, but continued to serve for a number of years as target tugs and trainers. Two Mercury-powered prototypes and 190 production aircraft were completed.



*Defiant Mk. I.*

[Imperial War Museum]

## Boulton Paul Defiant

**Data apply to Mk. II.**  
**Purpose:** Night fighter and target tug.  
**Engine:** One 1,260 h.p. Rolls-Royce Merlin XX inline.  
**Span:** 39 ft. 4 in.  
**Max. Speed:** 313 m.p.h. at 19,000 ft.

When it appeared on 11th August 1937, the Defiant represented a new fighter concept: it was the first in the world to dispense with a fixed forward-firing armament, using instead a power-operated turret behind the cockpit. The concept was, however, short-lived. Designed to Spec. F.9/35, the Defiant entered service early in 1940, and after a brief period of glory was diverted to night fighting in August 1941. Although some measure of success was achieved in this role, it was nowhere near comparable with other contemporary fighters and by the Spring of 1942 was being relegated to target towing duties. The Mk. III was actually built for this purpose, and most of the Mk. IIs and a few Mk. Is were eventually converted. A number of these also served overseas with the Fleet Air Arm. A total of 1,060 Defiants were built up to February 1943.





[Imperial War Museum]

## Bristol Bombay

**Purpose:** Bomber-transport.  
**Engines:** Two 1,010 h.p. Bristol Pegasus XXII radials.  
**Span:** 95 ft. 9 in.  
**Max. Speed:** 192 m.p.h. at 6,500 ft.

Designed to meet a 1931 Specification (C.26/31), the Bombay did not fly until 1935 and was not delivered to the R.A.F. until March 1939, by which time it was virtually obsolete. Nevertheless the 50 or so aircraft completed gave useful service as transports in the Mediterranean and Middle East theatres, and some were even used on night bombing raids in North Africa.



*Buckingham B. Mk. I.*

[Imperial War Museum]

## Bristol Buckingham

**Purpose:** Light bomber and transport.  
**Engines:** Two 2,520 h.p. Bristol Centaurus VII or XI radials.  
**Span:** 71 ft. 10 in.  
**Max. Speed:** 336 m.p.h. at 12,000 ft.

Arising out of a 1941 idea for a day bomber version of the Beaufighter, the Buckingham did not perform its intended role because by the time it was available in quantity the Mosquito, which had a better performance, was already a conspicuous success. Production, which was to have run to 400 Buckinghams, was cut back to 119 aircraft, of which the first 65 were eventually modified as transports and the final 54 built as such from the outset. As a high-speed courier and transport, the Buckingham carried a crew of three and four passengers. Range was 2,360 miles.





*Buckmaster T. Mk. I.*

[Imperial War Museum]

## Bristol Buckmaster

**Purpose:** Advanced trainer.  
**Engines:** Two 2,520 h.p. Bristol Centaurus VII radials.  
**Span:** 71 ft. 10 in.  
**Max. Speed:** 352 m.p.h. at 12,000 ft.

One of the fastest, as well as most powerful, trainers of its time, the Buckmaster was conceived in 1943 following the reduction in the Buckingham production programme and the ordering of prototypes for the Brigand ground attack aircraft. In addition to the 119 Buckinghams actually completed, components for another 110 were available, and by the installation of dual controls, elimination of the dorsal turret and ventral "gondola" the Buckmaster emerged. The first was delivered to the R.A.F. in 1945, the type remaining in service until 1955.



*Auster Mk. I.*

[Imperial War Museum]

## British Taylorcraft Auster

**Data apply to Mk. IV.**  
**Purpose:** Artillery observation and communications.  
**Engine:** One 130 h.p. Lycoming O-290-3 inline.  
**Span:** 36 ft. 0 in.  
**Max. Speed:** 130 m.p.h. at sea level.

From fourteen licence-built examples of the American Taylorcraft Plus C taken over at the outbreak of the war, the number had grown by 1945 to over 1,600 Austers built by Taylorcraft Aeroplanes (England) Ltd. They pioneered the now-familiar A.O.P. (Air Observation Post) role, and served in every European, Mediterranean and North African theatre of the war. Most numerous version was the Mk. V (780 built), preceded by the Mk. I (100 built), II (2), III (467) and IV (255), the Mk. I and III being powered by the Cirrus Minor and Gipsy Major respectively.





*Dominie C. Mk. I.*

[Imperial War Museum]

## de Havilland Dominie

*Purpose:* Trainer and communications.  
*Engines:* Two 200 h.p. de Havilland Gipsy Six inlines.  
*Span:* 48 ft. 0 in.  
*Max. Speed:* 157 m.p.h. at 1,000 ft.

A military version of the famous Dragon Rapide of the middle and late 'thirties, several Dominies were already in R.A.F. service before World War 2, although the name was not bestowed until after the outbreak. The navigation and radio trainer version was the Mk. I, the communications version the Mk. II. Wartime Dominie production was 475, in addition to which a number of Rapides were impressed for military service. The type was also used by the Fleet Air Arm, and after the war several Dominies were converted back to Rapide standard.



[Imperial War Museum]

## de Havilland Flamingo

*Purpose:* Transport.  
*Engines:* Two 930 h.p. Bristol Perseus XVI radials.  
*Span:* 70 ft. 0 in.  
*Max. Speed:* 239 m.p.h. at 6,500 ft.

Produced as a civil airliner for Jersey Airways, the D.H.95 Flamingo first flew in 1938 and entered airline service in the following year. When the war broke out, those so far completed were handed over to the Royal Air Force, and the remainder of the total of 16 were completed under military specifications. They were used by the King's Flight of the R.A.F. at Benson, Oxfordshire, along with one true military example, to which was given the name Hertfordshire.





*Tiger Moth Mk. II.*

[Imperial War Museum]

## de Havilland Tiger Moth

*Purpose:* Basic trainer.  
*Engine:* One 130 h.p. de Havilland Gipsy Major inline.  
*Span:* 29 ft. 4 in.  
*Max. Speed:* 109 m.p.h. at 1,000 ft.

Entering service with the R.A.F. in February 1932, the Tiger Moth was still in widespread use more than fifteen years later, and is surely one of the most famous and well-loved aeroplanes ever built. More than 1,000 of them were in R.A.F. service by September 1939, and wartime production rose to 4,005 in the United Kingdom, most of them built by Morris Motors; many also served with the Royal Navy. Under the Commonwealth Air Training Plan nearly 3,000 more were built in Canada, Australia and New Zealand, and some Canadian-built Tiger Moths were employed by the U.S.A.A.F. under the designation PT-24. The Mk. II, which was the chief production version, differed mainly in powerplant, the Mk. I having a 120 h.p. Gipsy III engine. The Queen Bee was a radio-controlled target version of which 420 were built.



*Battle Mk. I.*

[Imperial War Museum]

## Fairey Battle

*Purpose:* Light bomber.  
*Engine:* One 1,030 h.p. Rolls-Royce Merlin I, II, III or IV inline.  
*Span:* 54 ft. 0 in.  
*Max. Speed:* 241 m.p.h. at 13,000 ft.

Although it represented quite an advance over the Hawker biplanes which it replaced, the Battle was obsolescent in 1939 and remained in first-line service for only another year afterwards. Designed to Spec. P.27/32, the prototype Battle (K 4303) flew in March 1936 and the first production aircraft entered service a year later. A Battle gunner claimed the first German aircraft shot down during the war, and the R.A.F.'s first two V.C.s. of the war were won by Battle pilots, but the type was underpowered and under-armed and was soon transferred to training and target towing duties. A total of 2,419 Battles were built, over half of them by Austin Motors Ltd.





## Fairey Seafox

**Purpose:** Reconnaissance.  
**Engine:** One 395 h.p. Napier Rapier VI inline.  
**Span:** 40 ft. 0 in.  
**Max. Speed:** 124 m.p.h. at 5,860 ft.

Catapult seaplanes were used very little by the Royal Navy in World War 2, but the Fairey Seafox will be remembered as the "spotter" from H.M.S. *Exeter* which carried out daily reconnaissances throughout the Battle of the River Plate in December 1939. Designed to A.M. Spec. 11/32, the Seafox entered Fleet Air Arm service in April 1937 and at the outbreak of war equipped several British cruisers. One unusual feature of the Seafox, brought about by the requirements of catapult operation, was that the observer's cockpit was enclosed, whereas that of the pilot was open. Total production was 64 aircraft.



*Hamilcar glider prototype.*

[Imperial War Museum]

## General Aircraft Hamilcar

**Purpose:** Troop and tank transport glider.  
**Span:** 110 ft. 0 in.  
**Max. Towing Speed:** 150 m.p.h.

Designed to A.M. Spec. X.27/40, the Hamilcar was used with great success in the Normandy landings of 1944 and was the first Allied glider capable of transporting a 7-ton tank. Possible loads included a Tetrarch Mk. IV or U.S. Locust tank, two Bren carriers or scout cars, or a mobile Bofors gun. After a half-scale trial model had been made, the full-size prototype flew on 27th March, 1942, and 390 Hamilcar Is were built—all but the first 22 by various woodworking firms in the U.K. The designation Hamilcar X covered 22 Mk. I gliders converted in response to Spec. X.4/44 for a power-assisted version. With two 965 h.p. Bristol Mercury 31 radials installed, the Hamilcar X had a loaded weight of 47,000 lb. (compared with the glider's 36,000 lb.), a maximum speed of 145 m.p.h. and a range of 1,530 miles. Usual tug for the glider version was the Halifax III.





[Imperial War Museum]

## General Aircraft Hotspur II

*Purpose:* Training glider.  
*Span:* 45 ft. 10 $\frac{3}{4}$  in.

The G.A.L. 48 Hotspur I, designed to A.M. Spec. 10/40, had a pointed-tip wing with a span of 61 ft. 10 in. This version did not achieve series production, and on the principal version, the Mk. II, some eight feet were taken off each wingtip to improve performance and handling characteristics. Originally intended as an operational troop carrier, the Hotspur relinquished this role to the Horsa and was primarily employed for operational training with the Airborne Division. Usual tugs were Hawker Hectors or Audaxes. Experimentally, one G.A.L. 48B Twin Hotspur was completed, consisting of two standard fuselages and outer wing sections joined by a new "centre section" and a common tailplane.



*Harrow transport.*

[Imperial War Museum]

## Handley Page Harrow

*Purpose:* Transport.  
*Engines:* Two 925 h.p. Bristol Pegasus XX radials.  
*Span:* 88 ft. 5 in.  
*Max. Speed:* 200 m.p.h. at 10,000 ft.

The Handley Page Harrow was originally designed, to A.M. Spec. 29/35, as a transport, and 100 were ordered during that year. In 1936, under the R.A.F. expansion scheme, it was decided to adapt the type as a bomber, and it entered service in this capacity in April 1937. By the outbreak of World War 2 all Harrow squadrons had re-equipped with Wellingtons, and the Harrow was restored to its original purpose for war service—though a few performed minelaying duties in 1940/41. In the transport role, the Harrow (sometimes also called the Sparrow) could accommodate 20 troops or an equivalent freight load. The first 38 aircraft were Mk. I (830 h.p. Pegasus X) and the remainder, to which the above data apply, Mk. II.





[Imperial War Museum]

## Handley Page Hereford

**Purpose:** Medium bomber and bombing trainer.

**Engines:** Two 955 h.p. Napier Dagger VII inlines.

**Span:** 69 ft. 2 in.

**Max. Speed:** 265 m.p.h. at 15,500 ft.

The Hereford was practically identical to the Hampden (page 30) except for its powerplant, which conferred a slightly better performance. However, teething troubles with the Dagger engines restricted Hereford production to the 100 machines originally ordered, which were built at Belfast by Short Bros. & Harland to Spec. 44/36. These were virtually non-operational as bombers, and those that were not converted to Hampden standard served from 1940 onwards as bombing crew trainers.



*Hawker Audax.*

[Air Ministry]

## Hawker Audax and Hardy

**Data apply to Audax.**

**Purpose:** Army co-operation.

**Engine:** One 530 h.p. Rolls-Royce Kestrel IB inline.

**Span:** 37 ft. 3 in.

**Max. Speed:** 170 m.p.h. at 2,380 ft.

Although the Audax first entered R.A.F. service in 1931, and was out of production two years before the outbreak of World War 2, the type served during the first year or two of the war in the Middle East theatre. For most of this time it was pursuing its designed function of Army co-operation, though in the final stages of its war service its more usual role was that of trainer or glider tug at stations in the United Kingdom. A development of the Hawker Hart, the Audax was built to A.M. Spec. 7/31. Another Hart variant was the Hardy, similar to the Audax but with a higher-powered Kestrel engine and adaptable for a wider range of duties. By late 1941 it too had been superseded by more modern types.





## Hawker Hector

*Purpose:* Army co-operation.  
*Engine:* One 805 h.p. Napier Dagger III inline.  
*Span:* 36 ft. 11½ in.  
*Max. Speed:* 187 m.p.h. at 6,500 ft.

The Hector entered service with the Royal Air Force in February 1937 as a successor to the Hawker Audax. Like its predecessor, it remained useful during the early war years and finally faded out after a spell on glider towing duties at home stations. Production of the Hector ran to 178 aircraft and was undertaken by Westland Aircraft Ltd. at Yeovil.



*Henley Mk. II.*

[Imperial War Museum]

## Hawker Henley

*Purpose:* Target tug.  
*Engine:* One 1,030 h.p. Rolls-Royce Merlin II inline.  
*Span:* 47 ft. 10½ in.  
*Max. Speed (with drogue):* 272 m.p.h. at 17,500 ft.

Designed to the same Specification (P.4/34, for a fast monoplane light bomber) that eventually produced the Fairey Fulmar (page 25), the Hawker Henley was obviously inspired by its stable-mate the Hurricane, and actually utilised the outer wing sections of the latter. Due to a change of policy the Henley was not after all required for the light bomber role, and the production contract was reduced in May 1937 from 400 to 200 aircraft. These were completed (by the Gloster Aircraft Co.) for the less glamorous but very necessary job of high-speed target tug, under the designation T.T. Mk. III, serving until replaced from 1942 onwards by later types.





## Miles Magister

*Purpose:* Basic trainer.  
*Engine:* One 130 h.p. de Havilland Gipsy Major I inline.  
*Span:* 33 ft. 10 in.  
*Max. Speed:* 132 m.p.h. at 1,000 ft.

The Magister was the R.A.F.'s first monoplane trainer, and was also one of its most famous. Produced in response to A.M. Spec. T.40/36, the "Maggie" entered service in October 1937 and remained in full-scale use throughout World War II. Over 1,200 Magisters were built, many of them being returned to civil flying after the war under the title Hawk Trainer Mk. III.



*Martinet Mk. I.*

[Imperial War Museum]

## Miles Martinet

*Purpose:* Target tug.  
*Engine:* One 870 h.p. Bristol Mercury XX or XXX radial.  
*Span:* 39 ft. 0 in.  
*Max. Speed:* 237 m.p.h. at 15,000 ft.

In contrast to such diverse types as the Henley, Defiant and Battle, which were converted from other functions for gunnery target towing, the Miles Martinet was designed as a target tug from the outset. Very similar to the Master III trainer, on which it was based, the Martinet superseded the former in production in 1942 and was in extensive use during the remainder of the war, a total of 1,724 being completed. The type continued in service for several years after the end of World War 2.





*Master Mk. I.*

[Imperial War Museum]

## Miles Master

### **Data apply to Mk. II.**

*Purpose:* Advanced trainer.

*Engine:* One 870 h.p. Bristol Mercury XX radial.

*Span:* 39 ft. 0 in.

*Max. Speed:* 243 m.p.h. at 10,000 ft.

The prototype Master, a development of F. G. Miles' earlier and promising Kestrel trainer, first flew in 1938 and early production machines were delivered to the R.A.F. in the Spring of the following year. The Mk. I and IA, of which 900 were built, were powered by the 715 h.p. Rolls-Royce Kestrel XXX inline engine, but subsequent versions featured a radial powerplant. The first and most numerous of these was the Mk. II, production of which reached a total of 1,799; the final version (602 built) was the Master III, powered by the 825 h.p. Pratt & Whitney Wasp Junior and having a "clipped" wing of 35 ft. 7 in. span.



*Mentor Mk. I.*

[Imperial War Museum]

## Miles Mentor

*Purpose:* Trainer and communications.

*Engine:* One 200 h.p. de Havilland Gipsy Six inline.

*Span:* 34 ft. 9½ in.

*Max. Speed:* 156 m.p.h.

The M.16 Mentor entered Royal Air Force service during 1938, and altogether 45 of these aircraft were delivered for radio training and light communications duties. Many of these were still in service in 1944, after five years of intensive war service.





[Imperial War Museum

## Miles Messenger

*Purpose:* Air Observation Post and communications.

*Engine:* One 140 h.p. de Havilland Gipsy Major 1D inline.

*Span:* 36 ft. 2 in.

*Max. Speed:* 115 m.p.h.

Produced at the request of the War Office for a light and nimble two-seat Air Observation Post, the M.38 Messenger was a development of the twin-finned M.28 which served in small numbers as an R.A.F. communications aircraft. The Messenger prototype made its first flight on 12th September, 1942, and was built in small numbers to A.M. Spec. 17/43. With its docile handling qualities and an all-up weight of about one ton, it was an obvious "club" aeroplane, and several M.48s (a developed version) are still to be found on the British Civil Register.



Imperial War Museum

## Percival Petrel

*Purpose:* Communications and light transport.  
*Engines:* Two 205 h.p. de Havilland Gipsy Six II inlines.

*Span:* 46 ft. 8 in.

*Max. Speed:* 195 m.p.h. at 1,000 ft.

The Percival Q.6 light transport first appeared in 1937 and until the summer of 1939 was the fastest aircraft on British internal air routes. In 1938 seven of the Mk. V version were completed for the Royal Air Force to Spec. 25/38. These aircraft were given the service name Petrel, and served alongside the civil Q.6s throughout World War 2, several returning afterwards to the Civil Register. Versions with both fixed and retractable undercarriages were flown.





*Proctor Mk. IIA.*

[Imperial War Museum]

## Percival Proctor

### **Data apply to Mk. IV.**

**Purpose:** Radio trainer and communications.

**Engine:** One 210 h.p. de Havilland Gipsy Queen II inline.

**Span:** 39 ft. 6 in.

**Max. Speed:** 160 m.p.h. at sea level.

Preceded by 15 "militarised" Vega Gulls, the first prototype of the true military Proctor (P 5998) flew on 8th October, 1939. The R.A.F. received 147 Mk. I and the Fleet Air Arm 100 Mk. IA. Apart from the absence of dual controls, the Mk. II was generally similar, 50 going to the R.A.F. and 150 to the Royal Navy. The Mk. III was exclusively for R.A.F. use, 437 being built by F. Hills and Sons of Manchester, and the final version was the longer, four-seat Proctor IV (originally named Preceptor). Most of the 258 Mk. IVs were also Hills-built. Large numbers of ex-service Proctors came on to the civil market after the war, but the type also remained in diminishing use by the R.A.F. until 1955.



[Imperial War Museum]

## Saro Lerwick

**Purpose:** Maritime patrol.

**Engines:** Two 1,375 h.p. Bristol Hercules II radials.

**Span:** 80 ft. 10 in.

**Max. Speed:** 213 m.p.h.

The Lerwick, designed to A.M. Spec. R.1/36, was one of the aircraft chosen shortly before the war for the re-equipment of Coastal Command. It first appeared in 1938, the last of 29 aircraft was delivered in May 1941, yet in 1942 the type was declared obsolete. The reason for this has remained unexplained, officially, ever since—though the brief two-year life of the Lerwick was not apparently over-successful. It ended its service days on training duties, being replaced in its operational role by the American Catalina.





[Imperial War Museum]

## Saro London

*Purpose:* Maritime patrol.  
*Engines:* Two 1,000 h.p. Bristol Pegasus X radials.  
*Span:* 80 ft. 0 in.  
*Max. Speed:* 155 m.p.h. at 6,250 ft.

The prototype London (K 3560) made its maiden flight in 1934 (designed to A.M. Spec. R.24/31), and the first Mk. Is (Pegasus III) were delivered to Coastal Command in 1936. After ten Mk. Is, production continued with the Mk. II, of which a further 38 were built. Londons were still in front-line service when World War 2 began; they remained with the R.A.F. until replaced by Catalinas in 1941, serving thereafter with the Royal Canadian Air Force.



[Imperial War Museum]

## Short Singapore III

*Purpose:* Maritime reconnaissance.  
*Engines:* Two 560 h.p. Rolls-Royce Kestrel III MS (tractor) and two 560 h.p. Kestrel II MS (pusher).  
*Span:* 90 ft. 0 in.  
*Max. Speed:* 145 m.p.h. at 2,000 ft.

The original Singapore, the Mk. I, first appeared in 1926, and the example used by Sir Alan Cobham on his round-Africa flight became world-famous. The Mk. II of 1930 was not produced in quantity, but in March 1935 a development of this, the Mk. III, went into production and 37 were built for the R.A.F. A few remained in limited service for a while after the outbreak of war.





*Sea Otter Mk. I.*

[Imperial War Museum]

## Supermarine Sea Otter

*Purpose:* Air/sea rescue.  
*Engine:* One 855 h.p. Bristol Mercury XXX radial.  
*Span:* 46 ft. 0 in.  
*Max. Speed:* 150 m.p.h. at 5,000 ft.

The last biplane to be designed by Supermarine, and the last to serve with the Royal Air Force the Sea Otter was a successor to the famous Walrus (page 40). It was designed to A.M. Spec. S.7/38, incorporating aerodynamic improvements and a more powerful engine, which gave it a performance superior to that of its predecessor. Production of the 290 aircraft built was undertaken by Saunders-Roe Ltd. between 1943 and 1946, the first entering service at the end of 1943. The type operated in home waters and in the Far East during the remaining war years, and continued in service for some years afterwards.



[Imperial War Museum]

## Supermarine Stranraer

*Purpose:* Maritime patrol.  
*Engines:* Two 875 h.p. Bristol Pegasus X radials.  
*Span:* 85 ft. 0 in.  
*Max. Speed:* 165 m.p.h. at 6,000 ft.

A small number of Stranraer flying boats remained with two R.A.F. squadrons in September 1939, and continued to give useful service for a few months until replaced by later types. Designed by R. J. Mitchell, the prototype appeared in 1935 and the Stranraer joined Coastal Command the following year.





## Vickers Valentia

**Purpose:** Troop transport.  
**Engines:** Two 650 h.p. Bristol Pegasus II radials.  
**Span:** 87 ft. 4 in.  
**Max. Speed:** 130 m.p.h. at 5,000 ft.

Developed from the Victoria—many early Valentias actually being converted Victoria Mk. Vs—the Valentia was very active as a transport aircraft in the Middle East during the mid-thirties. Entering service in 1934, it remained in R.A.F. service, albeit in decreasing numbers, until as late as 1943.



*Warwick B. Mk. I.*

[Imperial War Museum]

## Vickers Warwick

**Data apply to A.S.R. Mk. I.**  
**Purpose:** Air/sea rescue.  
**Engines:** Two 1,850 h.p. Pratt & Whitney Double Wasp R-2800 radials.  
**Span:** 96 ft. 8½ in.  
**Max. Speed:** 224 m.p.h.

Originally intended as a Wellington replacement (to Spec. B.1/35), the Warwick did not finally enter production until 1942, by which time it was no longer required as a bomber. The air/sea rescue Mk. I (399 built) entered service in 1943, followed by 130 Centaurus-powered Mk. IIs, which were similarly employed. Fourteen Mk. Is were converted as B.O.A.C. transports, transferring to Transport Command in 1944, and were followed by 100 Mk. III transport versions. Final version was the Centaurus-powered Mk. V (210 built), which was not in service until after the war.





*Wellesley Mk. I.*

[Imperial War Museum

## Vickers Wellesley

*Purpose:* Bomber.  
*Engine:* One 925 h.p. Bristol Pegasus XX radial.  
*Span:* 74 ft. 7 in.  
*Max. Speed:* 228 m.p.h. at 19,680 ft.

Surely one of the largest-span single-engined aircraft ever produced in quantity, the Wellesley was the first aeroplane to employ Barnes Wallis' geodetic method of construction. Initiated as a private venture, the type went into production in 1937 to A.M. Spec. 22/35, and by May of the following year 176 Wellesleys had been completed. Superseded by the outbreak of war by later types, the Wellesley nevertheless served in the Middle East as a bomber during 1940, and on reconnaissance duties until 1941.



[Imperial War Museum

## Westland Whirlwind

*Purpose:* Long-range fighter and fighter-bomber.  
*Engines:* Two 885 h.p. Rolls-Royce Peregrine inlines.  
*Span:* 45 ft. 0 in.  
*Max. Speed:* 360 m.p.h. at 15,000 ft.

Designed to A.M. Spec. F.37/35 and first flown (prototype L 6844) in October 1938, the Whirlwind did not enter Royal Air Force service until June 1940. It was unfortunate in being designed for a powerplant which suffered many teething troubles and which consequently was not produced in large numbers. As a long range escort and, with modifications, as a fighter-bomber, the Whirlwind had reasonable success, but the 116 machines built never achieved great heights and by 1943 they had been virtually superseded by other aircraft.



## Other Types

*(Experimental and less important/operational aircraft)*

**Airspeed A.S.39 Fleet Shadower.** To same specification (S. 23/37) as the G.A.L.38 (see below), which it closely resembled. One completed and another started before project was abandoned.

**Airspeed A.S.45.** Advanced trainer design to T.4/39. Two prototypes built, but aircraft not produced.

**Airspeed Envoy.** Similar appearance to Oxford (page 12), was development of civil Courier. Several used during war for communications.

**Avro Lincoln.** "Stretched" development of Lancaster to B.14/43, originally designated Lancaster IV and V. First flown 1944 and in service early 1945, but too late for operational use.

**Avro Rota.** Licence-built version of Cierva C.30A Autogiro, equipping one wartime R.A.F. squadron.

**Blackburn B.20.** Twin-engined flying boat project in which the whole hull bottom acted as a retractable landing gear. Only one built.

**Blackburn B.44.** Small single-engined seaplane, designed to have same retractable hull principle as B.20 but not built.

**Blackburn Firebrand.** Strike aircraft to N.11/40, first flown 1942 and in production by middle war years, but not in service until September 1945.

**Blackburn Shark.** Blackburn's last biplane, used in limited numbers for communications and torpedo training.

**Boulton Paul Overstrand.** Twin-engined biplane bomber of the middle 'thirties, of which a small number were used up to 1941 for gunnery training.

**Boulton Paul P.92.** Twin-Vulture turreted fighter project, to F.11/37. Half-scale prototype only (P.92/2) with Gipsy Majors.

**de Havilland Albatross.** Two prototypes of civil airliner impressed for R.A.F. service; destroyed in August 1941 and April 1942.

**de Havilland Hornet.** Development of the Mosquito as a long range fighter, was in production late 1944 but not in service until 1946. Was fastest R.A.F. piston-engined fighter.

**de Havilland Vampire.** Second British production jet fighter, designed to E.6/41. First flown 1943 but not in service until 1946.

**Fairey Spearfish.** Barracuda replacement to Spec. O.5/43, first flown July 1945 and too late for war service. Only four built.

**Fane F.O.P.** Ultra-light Flying Observation Post aircraft, prototype only with civil registration G-AGDJ.

**General Aircraft Cygnet.** Single-engined, twin-finned lightplane used in small numbers for communications.

**General Aircraft G.A.L.38 Fleet Shadower.** Special purpose aircraft, one only built to Spec. S.23/37. Four engines, low speed and STOL capability.

**General Aircraft G.A.L.47.** Ultra-light private venture design for A.O.P. duties. Not produced.



*The Blackburn B.20, resting on beaching gear and showing its unusual retractable hull.*  
[Imperial War Museum]



**General Aircraft G.A.L.55.** Small, two-seat training glider to TX.3/43. Two prototypes only.

**General Aircraft G.A.L.56.** Small research glider for "flying-wing" flight. Only three or four built, beginning trials late 1944.

**Gloster E.28/39.** Britain's first reaction-propelled aircraft, first flown 15th May, 1941. Powered by a single Whittle W.2/7000 jet engine.

**Gloster F.9/39.** Resembling a twin-finned Beaufighter, was a project for a fast twin-engined fighter. Two built, one with Taurus and one with Peregrine powerplant. No production.

**Hawker Fury.** Development of Tempest II to F.2/43, was first flown 1944 but eventually produced for export only.

**Hawker Sea Fury.** Naval counterpart of Fury, to N.7/43, was last F.A.A. piston-engined fighter, entering service after end of war.

**Martin-Baker M.B.5.** Single-seat fighter to F.18/39, resembling the P-51 Mustang. First flown late 1944, maximum speed of 465 m.p.h., but only one completed.

**Miles Falcon.** Elementary trainer, not unlike the Mentor (page 56). One R.A.F. squadron on communications until 1940.

**Miles M.20.** Utility fighter of 1940, designed, built and flown in just over nine weeks. Fixed undercarriage, Merlin XX engine and many Master components; was nearly as fast as the Spitfire but only two were completed.

**Miles M.35.** Research aircraft for a revolutionary fleet fighter, with canard layout and single "pusher" engine. Designed, built and flown in six weeks.

**Miles M.39B Libellula.** Flying scale model for a multi-engined bomber or transport. Canard layout, twin engines and triple tail assembly.

**Miles Monitor.** Twin-engined specialised target tug to Q.9/42. Prototype flown 1944, originally intended for R.A.F. but only 20 built, which served with the Royal Navy.

**Short Seaford.** Development of the Sunderland (page 36) to R.8/42 and originally designated Sunderland IV. In production (31 built) but not in service during war. Subsequently converted to civil Solents.

**Slingsby Hengist.** Fifteen-passenger glider to Spec. X.25/40. Four prototypes and 18 production aircraft only, and role changed to equipment transport.

**Supermarine Seafang.** Naval counterpart of Spitfire (see below) to N.5/45; 150 ordered May 1945 but only eight delivered.

**Supermarine Spitfire.** Straight-winged Spitfire development to F.1/43. First flown 1944 but too late for war service and production cancelled after only a few had been completed.

**Supermarine Type 322.** Nicknamed "Dumbo", was designed to same Specification (S.24/37) as the Barracuda and featured a variable-incidence wing. Two prototypes only.

**Vickers-Armstrongs Type 432.** Design to F.7/41 for a pressurised twin-Merlin high altitude fighter and unofficially christened "Mayfly". Did not progress beyond prototype stage.

**Vickers-Armstrongs Windsor.** Four-motor heavy bomber with elliptical wing form. Abandoned after only one or two prototypes were completed.

**Vickers Vildebeest.** Biplane torpedo-bomber of 1930. A few, mostly Mk. IV, served briefly during the early war years.

**Vickers Vincent.** Single-engined general purpose biplane, entered service 1934; a few remained active until 1941.

**Westland Wallace.** Single-engined general purpose biplane of 1934, small numbers remaining in service converted to target towing until 1943.

**Westland Welkin.** Single-seat twin-Merlin high altitude fighter. Only a few built, which were too late for war service.



*The Short Seaford I, originally the Sunderland IV, was just too late to see operational service.*  
[Imperial War Museum]



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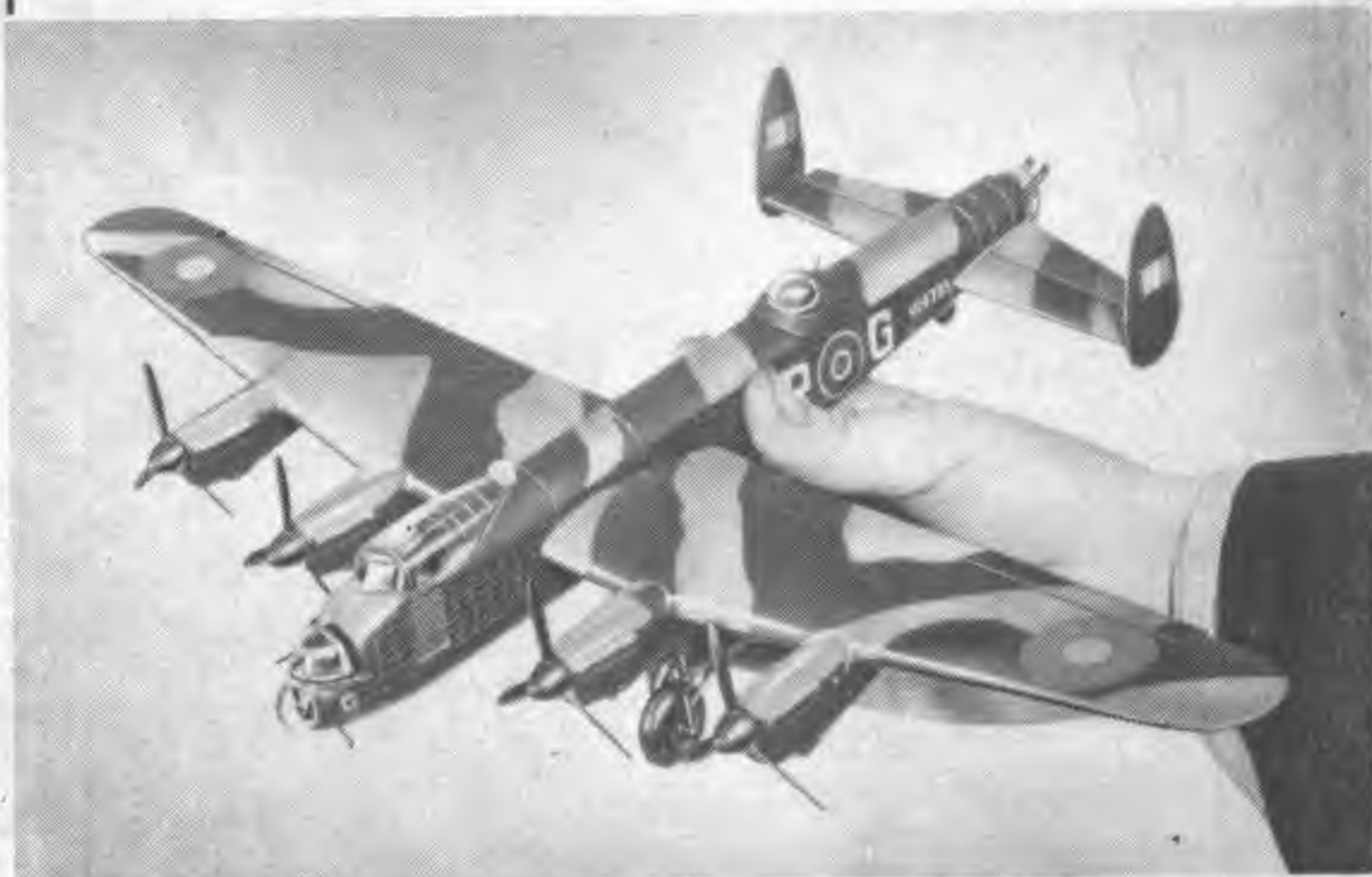
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